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Value creation in University-industry relationships

a view on stakeholder and relationship value from the perspective of academics in England

Kliewe, Thorsten

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Value Creation in University-Industry Relationships

A view on stakeholder and relationship value
from the perspective of academics in England

By

Thorsten Kliewe

PhD

April 2015



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Thorsten Kliewe

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Director of Studies

Dr. Gerry Urwin (Coventry University)

Supervisors

Professor Tom Donnelly (Coventry University)

Professor Thomas Baaken (Münster University of Applied Sciences)

Dr. Clive Winters (Coventry University)

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Coventry University Business School

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ABSTRACT

In today's knowledge economy hardly any organisation can address its dynamic nature and competitive advantage as a single organisations. More than ever, organisational survival and growth depends on continuous learning and cooperation. This research examines value creation in relationships between higher education institutions and private business organisations. Integrating literature streams on relationship marketing, stakeholder theory and university-industry relationships, the research aims to identify key drivers of stakeholder value creation, to better understand the interrelationships between the stakeholder values generated and determine which stakeholder values driver relationship outcomes. Overall, this research integrates the stakeholder and relationship perspective (multi-level research) and intends to contribute to further opening up the "black box" of value creation in university-industry relationships by putting stakeholder and relationship value at the centre of the study.

Based on a literature review and the integration of the three main literature streams, a conceptual model was developed, forming the basis for an exploratory pre-study aiming to develop a more in-depth understanding of the phenomena. Conducting interviews among academics and technology transfer officers, the model was refined before the main, explanatory research step, implemented through a web-based questionnaire among England-based academics, was carried out to test the conceptual model.

The model is comprised with three main elements. First, relationship characteristics (common understanding of expectations, commonness of expectations and commitment) drive the value creation for different stakeholders. Second, the value developed for six main stakeholders (the surveyed academic, the academic team, the university, the business partners, students, and society) impacts the academic's perception of the overall relationship value. Lastly, the overall relationship value, as perceived by the academic positively affects further relationship outcomes (relationship satisfaction, word-of-mouth, intention to renew the relationship, intention

to expand UIR activities beyond the current relationship(s)). Using structural equation modelling, the model was analysed and refined based on 903 responses of a self-administered questionnaire.

The results show that commitment as well as the common understanding as well as the commonness of expectations are key elements driving stakeholder value creation, consistent with literature. With respect to the interrelationships between the realised and expected values generated for different stakeholders, the university emerged as a central actor in the relationship, positively impacting all other stakeholder values. In addition, all other stakeholder values positively society value with the value generated for the surveyed academic and for the business partner also affecting the value generated for the academic team. The results highlight that the academic's perception of the overall relationship value is significantly and positively influenced by the value generated for the academic itself, the academic team, the university and society. Value generated for students, as a main target group of universities, as well as value generated for the business partners, as the main stakeholder in the relationship, however, were not confirmed to impact the overall relationship value, as perceived by the academic.

In addition to the structural model as presented above, four different models have been developed to examine which stakeholder values drive the four addition relationship outcomes, namely relationship satisfaction, word-of-mouth, intention to renew, and intention to expand. The results show that the outcomes are driven by different sets of stakeholder value with student value driving all outcomes, business value not impacting any outcome and the impact of the others depending on the outcome under study.

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LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|-------|--|
| AGFI | Adjusted Goodness-of-Fit |
| AVE | Average Variance Extracted |
| B2B | Business-to-Business |
| CERIF | Common European Research Classification Scheme |
| CFI | Comparative Fit Index |
| CS/D | Customer Satisfaction / Dissatisfaction |
| df | Degrees of Freedom |
| GFI | Goodness-of-Fit |
| RBV | Resource-based View |
| KTT | Knowledge and Technology Transfer |
| MAP | Multiple Answers Possible |
| NFI | Normed Fit Index |
| RET | Relational Exchange Theory |
| RDT | Resource Dependence Theory |
| RM | Relationship Marketing |
| RMSEA | Root Mean-square Error of Approximation |
| R&D | Research and Development |
| SEM | Structural Equation Modelling |
| ST | Stakeholder Theory |
| TLI | Tucker-Lewis Index |
| UIR | University-Industry Relationships |
| VAR | Variance |
| WOM | Word-of-mouth |

1. INTRODUCTION

“The last 30 years of research on stakeholder theory has led to a rich and varied literature. The next step is to see stakeholder theory as a way to redefine how we think about value creation and trade. If we can make the twenty-first century the century of value creation for stakeholders, and if we can escape the political and institutional trap of building in trade-offs among stakeholders into public policy, then the sheer audacity of our fellow humans will lead to prosperity and freedom for more and more people.” (Freeman, 2010, p. 9)

1.1 Background to the Research

University-industry relationships (UIRs) are not a new phenomenon but have become a central issue in terms of innovation, economic growth and business competitiveness over the past decades (Geisler, 1993; Leydesdorff & Etzkowitz, 2001; Salter & Martin, 2001; OECD, 2002a; Ashmore, 2006; Perkmann et al., 2013; Etzkowitz, 2014). Intensification and rapid changes of the competitive landscape (Cartwright, 2000; Siguaw et al., 2003; Prahalad & Ramaswamy, 2012), fostered by factors such as globalisation (Gummesson, 2002) and faster technological development (van Rossum & Cabo, 1995; Santoro & Chakrabarti, 2002), have led to a significant change of the market player's roles and behaviour.

First, companies across all industries move from a close/in-house research policy to a more open/collaborative one (Lambert, 2003). Since innovation is seen as (one of) the most important driver to gain and maintain sustainable competitive advantage in the new knowledge economy (Tucker, 2002; IBM, 2006), businesses tend to open their research and innovation processes (Dodgeson et al., 2005; Laursen & Salter, 2006; Chesbrough, 2006) in order to enhance their innovation potential by accessing external resources (Howard, 2005).

Second, universities and other higher education and research organisations as providers of research competencies, capacities and results (Baaken, 1999) are interested in collaborations with industry to raise their third-party funds and to internalise practical knowledge (Bozeman, 2000; Carayol, 2003). Especially in view of increasing cuts in state support (e.g. van Rossum & Cabo, 1995; Karlsson, 2004), third party funds and industrial knowledge can be used for teachings and to establish

a knowledge basis as a new source of future income (Australian Centre for Innovation et al., 2002).

Third, government's interest is directed towards UIRs due to their importance for regional and national development (Chakrabarti & Lester, 2002; OECD, 2002a,b; KTH, 2006). There is a growing public view that higher-education organisations, as generators and disseminators of knowledge, and learning have a large responsibility and special capability to support social and economic issues (Australian Centre for Innovation et al., 2002; Malik, 2013). Furthermore, the commercialisation of research or, in other words, the capitalisation of knowledge results in a better return of the public funds invested (Salter & Martin, 2001; Australian Centre for Innovation et al., 2002).

Based on these changing conditions, the number of research collaborations between universities and private businesses has increased significantly in recent times (Siegel et al., 2001; Poyago-Theotoky et al., 2002; Perkmann et al., 2011). Universities and industrial organisations no longer act separately, but rather build partnerships and networks to create value in a cooperative way. These relationships represent today's shift in value creation from physical to intellectual resources with joint knowledge creation and innovation as the primary value-adding activities (Cartwright & Oliver, 2000). Acknowledging the potential and the increasing extend of this specific relationship form, UIRs have received a growing attention from the early 2000s from public bodies (e.g. European Commission, 2000; OECD, 2002a; D'Este & Patel, 2007), academics (e.g. Davenport et al., 1999; Johnson & Johnston, 2004) and practitioners (Plewa & Quester, 2007), and is seen as a key issue in terms of economic growth and competitive advantage (Geisler, 1993; OECD, 2002a).

However, today there is no consensus on how value is created in UIRs – this being the central focus of the Ph.D work presented in this thesis.

1.2 Research Context and Scope

This research investigates value creation in UIRs and is based on three primary literature streams, namely relationship marketing (RM), stakeholder theory (ST) as well as university-industry relationships (UIRs). In order to contribute to a better understanding of the problem statement as well as the research objectives and questions, the following sections will briefly introduce these literature streams.

1.2.1 Relationship Marketing (RM)

RM has emerged as a central field of marketing research and practice (Frow & Payne, 2009; Abeysekera & Wickramasinghe, 2012), sometimes even referred to as the dominant view (Möller, 2013). Following Plewa's definition based on a discussion of Grönroos' (1997) and Harker's (1999) work, "relationship marketing involves proactively identifying, creating, developing, maintaining, enhancing and, when necessary, terminating relationships that are trusting, committed and interactive in nature with selected customers [partners], in order to create a mutual value over time" (Plewa, 2005, p. 25). RM can be clearly differentiated from transaction marketing, which has been the prior focus in theory and practice. Transaction marketing can be understood as an action-related approach with a short-term focus on acquiring new customers, compared to the interaction-based approach of RM aiming to maintain existing relationships to create value in the long term (Grönroos, 1991; Coviello et al., 2002).

The concept of relationship value has increasingly attracted attention in RM (Uлага & Eggert, 2005) and will serve as one of the main subjects under study in this research.

1.2.2 Stakeholder Theory (ST)

ST has raised considerable interest in the last two decades, especially among those working in the fields of organisation and management (Donaldson & Preston, 1995; Guerci & Shani, 2013) as well as corporate social responsibility and performance (Schwartz & Carroll, 2008; Wijnberg, 2000). In ST development, three main interconnected problem areas have become central, namely "the problem of understanding how value is created and traded, the problem of connecting ethics and capitalism, and the problem of helping managers thinking about management such that the first two problems are addressed" (Parmar et al., 2010).

In this research, the primary focus is on the first mentioned problem area: understanding value creation. More precisely, the work aims to investigate how stakeholder and relationship value are created and how the two concepts are linked. This linkage between RM and ST is investigated in the context of UIR, the third main literature stream in this research.

1.2.3 University-Industry Relationships (UIRs)

UIRs have generated significant awareness in the past two decades as they represent a cooperative way for creating value in today's knowledge society. UIRs can be understood as interactions where both university and industry contribute resources and share the benefits proportionally to their contributions (Lambert, 2003). The term summarises "all types of direct and indirect, personal and non-personal interactions between organisations and/or individuals" (Schartinger et al., 2002, p. 304) between universities and business organisations, including e.g. collaborative research, contract research, personal exchanges/placements, consulting, training and other services, patenting/licensing, joint ventures/spin-offs and entrepreneurship, professional networks and boards, sharing of facilities, and publications (e.g. Bonaccorsi & Piccaluga, 1994; Faulkner & Senker, 1995; Bozeman, 2000; Geisler, 2001; Schartinger et al., 2002).

Within this thesis the term university is used as a "catch-all" of any institution for which higher education is its core business, including universities, academies, technikons and postsecondary vocational and technical schools. Similarly, the term industry means any business organisation and is therefore not limited to traditional industrial companies. Hence, "university-industry" covers any higher education institution, and any business organisations.

This research focuses on those types of UIRs where a high degree of interaction as well as a medium to long-term relationship can be expected. Hence, collaborative research, contract research, staff mobility (placements) as well as consulting were chosen as the subject of this study.

1.3 Problem Definition

Value creation is one of the key areas of interest of researchers and practitioners in the field of business relationships since it can be seen as a fundamental goal of every business (Normann & Ramirez, 1993; Anderson & Narus, 1998; Mele, 2007). The concept of value is accepted by researchers and practitioners, and has been a particular focus in business-to-consumer (Lapierre, 1997; Donath, 1998) and business-to-business (B2B) marketing (Anderson & Narus, 1998; Blankenburg-Holm et al.,

1999; Ford & McDowell, 1999). In B2B settings, value creation has been investigated at two different levels. While a lot of studies focus on dyadic business relationships (Lapierre, 1997; Anderson & Narus, 1998; Möller & Törrönen, 2003; Hirvonen & Helander, 2001), an increasing interest aroused recently in terms of multi-stakeholder relationships or business networks (Parolini, 1999; Kothandaraman & Wilson, 2001; Möller et al., 2002).

As Parmar et al. (2010) highlight, a growing interest in utilising ST for the development of marketing theory and practice can be observed. In fact, the integration of ST and marketing (especially RM) has resulted in a concept called stakeholder marketing (e.g. Polonsky, 1999; Bhattacharya & Korschun, 2008). Polonsky (1999), referring to various other studies, however, summarises that a true integration of ST and marketing practice has not been implemented on a whole as ST has often only been broadly discussed in the marketing context, but the integration of key components of ST is still missing. In a more recent study, Hult et al. (2011) analysed 58 articles, published between 1985 and 2009 in top marketing journals, addressing stakeholder issues. While the number of articles found indicates a larger focus on linking marketing and ST in recent years, the authors also recognised that only a few studies integrated more than one stakeholder. Thus, it can be concluded that the foundation of ST, namely the management of all stakeholders, has not yet found its way into marketing research at large. With respect to value creation, Polonsky (1999) suggest the integration of ST into a model on marketing interactions in order to focus on a larger number of stakeholders which will increase the options of firms and accordingly enlarge the opportunities to create value. With his statement “The last 30 years of research on stakeholder theory has led to a rich and varied literature. The next step is to see stakeholder theory as a way to redefine how we think about value creation and trade”, Freeman (2010, p. 9) also points towards the importance of gaining a better understanding of value creation in this context.

Given this interest in linking marketing and ST, and the importance of value creation in this context, few comprehensive research has been undertaking to integrate the two literature streams, and to develop and empirically test comprehensive models on value creation integrating multiple stakeholders. More specifically, Sharma (2008), for example, highlights that the linkage between relationship com-

mitment and relationship value has mostly focuses on direct links, leading to a missing investigation of mediators. This missing integration of mediators from other fields can be widely found in RM and ST literature.

To summarise, despite the high interest in integrating RM and ST, no comprehensive, empirically validated model has been found that links stakeholder and relationship value creation. More specifically, a lack of knowledge exists with respect to integrating stakeholder values in between the established link of relationship characteristics and relationship value, finally resulting in two knowledge gaps. First, questions arise regarding the influence of relationship characteristics on the value generated for the different stakeholders (gap 1). Second, and probably most interesting, it is unclear how the different stakeholder values affect the overall relationship value (gap 2).

In addition to the knowledge gaps 1 and 2 which are based on the relationship between stakeholder values and relationship characteristics (gap 1) and outcomes (gap 2), another gap of knowledge can be identified with respect to the interdependences between the stakeholder values generated. Already more than 40 years ago, Rhenman (1968, p. 54) stated that an organisations survival “is a common goal of all stakeholder”, resulting in “interdependences between the stakeholders”. These interdependences are also one of the key tenants of ST for a long time, called jointness of interests (e.g. Freeman, 1984). The basic idea of the concept is that, rather than pursuing interests at the expense of other stakeholders, managers should first identify the jointness of interests with stakeholders and aim to expand the value creation accordingly. More recently, Porter and Kramer (2011) published a book entitled “creating shared value”, referring to the same concept as outlined by Strand and Freeman (2013). While the concept of jointness of interests has been widely discussed in ST as a key element of value creation, hardly any empirical research has been conducted. Freeman et al. (2010) might provide one reason for this lack of research. In their book “Stakeholder Theory: The State of the Art”, they specifically put the jointness of interests on the research agenda by asking “How do we conceptualize the interaction effects of stakeholders—the jointness of stakeholder interests?” (Freeman et al. 2010, p. 288). With respect to the implementation of this research agenda, they recommend, referring to the works of Bhattacharya and Korschun (2008), Jackson (2001) and Kotler (2005) that just integrating one or a

small number of stakeholders is no longer adequate, thus calling for a more complete view on stakeholder value creation. Transferring the idea of the jointness and interdependences of stakeholder interests to the value creation process, the question arises, how the value created for one stakeholder affects the value created for another, leading to the third knowledge gap.

Specifically the UIR environment is lacking solid research on (relationship) value creation, making a case for investigating the identified knowledge gaps in this area. For example, both Frassetto et al. (2012) and Plewa et al. (2013) highlight in their UIR RM studies that only limited research has been published on RM in the context of the higher education sector respectively UIR. In line with this, Laplume et al. (2008) conclude in their meta-analysis on ST research that most research has been dedicated to large for-profit firms, with a significant knowledge gap existing for other organisation types, leading to their call for more research on non-profits, smaller businesses and other organisation types. The importance of enlarging ST research to other organisation types, such as universities, is also highlighted by the authors' agreement with the statement of Phillips et al. (2003) that "stakeholder theory to truly come into its own as a theory of strategic management and organizational ethics, it will need to be applied to more than just the large, publicly held corporation" (Phillips et al. 2003, p. 495). Moving the view towards the central element of this research, the value creation process, Mindruta (2013) highlights that the economic benefits of UIRs are not in question, the sources of value creation in UIR, however, "remain underexplored" (Mindruta, 2013, p. 644). This statement is supported by the fact that the largest review of literature on UIR, performed by Perkmann et al. (2013) looks at various different factors (individual factors, organisational factors, institutions factors) as well as different outputs. The value creation process, however, is not detailed at all and only integrated as a kind of "black box" in the authors' analytical framework.

Given this lack of research on RM and ST, and more specifically stakeholder and relationship value creation, in UIR, the investigation in this context is deemed to provide significant opportunities to contribute to theory and practice. The following figure shows the three identified research gaps which will be addressed in this research in the UIR environment.

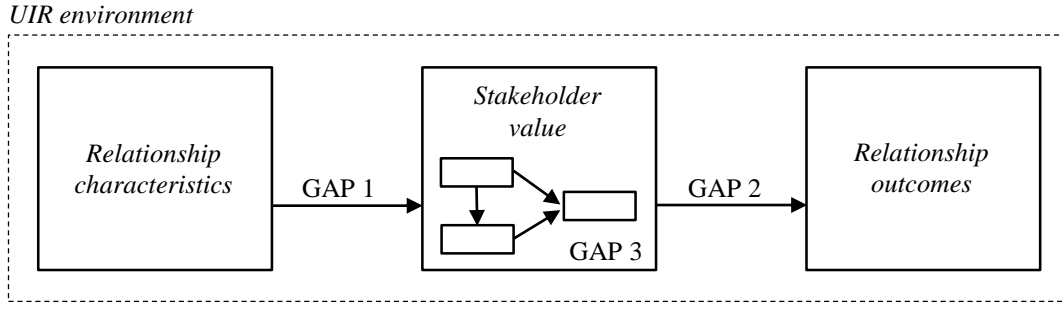


Figure 1: Knowledge Gaps

1.4 Research Objectives and Questions

In order to address the three research gaps identified in the previous section, this research's overall objective is to *investigate value creation in UIRs by taking a stakeholder and relationship value perspective*. In addition to the overall objective, three sub-objectives are specified.

First, this study aims to contribute to the advancement of RM, ST and UIRs by integrating the three literature streams. Second, the research attempts to develop a comprehensive conceptual model as well as a measurement model on value creation in UIR, with a focus on relationship characteristics, stakeholder value, relationship value as well as further relationship outcomes. Third, the research intends to empirically test the developed model in order to gain insights into the model's accuracy and to contribute to our understanding on how value is created in today's UIR practice.

In line with the highlighted research gaps objectives, the following research questions are set to be answered in this study:

1. Which are the key relationship characteristics driving stakeholder value creation in UIRs?
2. How does the value created for one stakeholder affect the value created for other stakeholders, and vice versa?
3. Which are the key drivers of overall relationship value and further relationship outcomes, as perceived by academics?

The following section presents an outline of the thesis and briefly highlights the content of each chapter.

1.5 Outline of the Thesis

Chapter 1 provides a general introduction to the thesis. Starting with an outline of the research's context, the chapter continues with a presentation of the three main literature streams integrated in the research, namely relationship marketing (RM), stakeholder theory (ST) and university-industry relationships (UIR). Following this, the knowledge gaps are stated and research objectives and questions are derived before the structure of the thesis is presented.

Chapter 2 presents a literature review on the three main streams of this thesis, RM, ST and UIR.

Following a short chapter introduction in the first section, *section 2.2* focuses on RM. Following a description of the evolution and theoretical basis of the discipline, different RM definitions are discussed before a relevant definition for this thesis is derived. Next, the chapter introduced the different constructs integrated in this study. First, the concept of relationship value is defined and discussed. Second, four outcomes of relationship value, namely satisfaction, word of mouth (WOM), intention to renew, and intention to expand, are highlighted. Lastly, relationships characteristics (trust and commitment) as antecedents of relationship value are presented.

The subsequent section, *section 2.3*, is dedicated to the second main literature stream, ST. Starting in the same structure as the previous section, the evolution of ST as well as theoretical perspectives are outlined before a definition of the term ST follows. Next, linkages between ST and RM as well as between ST and Value creation are discussed before classification approaches are outlined and the concept of stakeholder value is introduced.

Section 2.4 then summarises key literature on UIR. The section begins with the evolution of UIRs and their role in today's economy, with a subsequent discussion of several definitions and the development of a working definition for this study. Hereafter, the different indirect and direct stakeholders of UIRs, including benefits and sacrifices, are outlined and the concept of relationship value in UIRs is elaborated. The next two sections detail the outcomes of relationship value as well as relationship characteristics, as illustrated earlier, in the context of UIR.

The integration of the three literature streams results in the development of a conceptual model, which is presented in *section 2.5*

Chapter 3 outlines the overall research design of the study as well as the qualitative research step. Beginning with a discussion on research paradigms, the chapter discusses and justifies the research methods applied in this study. Following this, the chapter continues with the presentation of the qualitative research method, implemented sampling procedures and information on data collection and analysis. As a central part of this chapter, results of the conducted interviews are presented. The chapter concludes with the refinement of the model and the development of hypothesis for quantitative analyses.

Chapter 4 specifies and justified the research design of the main, quantitative research step. In the beginning, the chapter presents the general research method, the level of theory, measurement and analysis, as well as the sampling strategy. The questionnaire design, including the operationalization of constructs, scales and measurement, as well as drafting and pre-testing, follow. The chapter closes with detailed information on how the data was collected, prepared/processed and analysed.

Chapter 5 presents the results of the quantitative research step explained in the previous chapter. Starting with relevant issues such as case selection, missing values, normality reliability, validity, the chapter outlines the one-factor congeneric models and concerns regarding Structural Equation Modelling (SEM), such as model identification and goodness-of-fit indices. Following this data preparation, the next section presents information on the final sample included in the analysis. The results of the analysis, including hypothesis support and model-fit, are outlines before a re-specification of the model is justified and conducted. In addition to the presentation of the main model, four additional models are presented which eliminate the relationship value construct and highlight the direct and indirect influence of the stakeholder value constructs on the four relationship outcomes satisfaction, WOM, intention to renew, and intention to expand.

Chapter 6 starts with the discussion of the results. Integrating previous findings and the results of this study, the chapter presents the main findings of this research. Following this, the chapter outlines the limitations of the study in order to

contribute to the interpretation of the findings, highlights the contributions of this research to theory and practice. Lastly, derived from the results but also the limitations of this study, the chapter gives recommendations for future research.

1.6 Chapter Summary

The importance and implementation of relationships between universities and business organisations has grown significantly over the past decades, and especially over the past years. This chapter has given an overview on the wider context of UIRs in today's economy and highlighted that our understanding of how value is created in these relationships is not well investigated yet. Given this context and knowledge gap, the chapter illustrated the investigation of value creation in UIRs from a stakeholder and relationship value perspective as the main objective of this study.

To conclude, the chapter informed about the background, focus and structure of this study. The following chapter presents a review on the three main literature streams forming this research, namely RM, ST and UIRs.

2. LITERATURE REVIEW AND CONCEPTUAL MODEL DEVELOPMENT

2.1 Chapter Introduction

This chapter is dedicated to (1) the development of an understanding of the three main literature streams of this research, namely RM, ST and UIR, (2) the integration of these streams, as well as (3) the development of a conceptual model for value creation in UIRs based on the results presented. In order to achieve these three goals, the literature streams are introduced one after another whereby the results of the already presented stream(s) are discussed in and linked to the following one(s), thus successively resulting in an integration of RM, ST and UIR literature.

The next section will introduce RM (section 2.2) with the literature reviews on ST (section 2.3) and UIRs (section 2.4) following. Finally, the conceptual model based on the three literature streams is presented (section 2.5).

2.2 Relationship Marketing (RM)

Over the past decades, RM raised significant interest and became a central concept in marketing literature and practice (Takala & Uusitalo, 1996; Hingley, 2005; Egan, 2011; Payne & Frow, 2013), with Palmatier et al. (2006, p. 136) even referring to RM as “one of the dominant mantras in business strategy circles”. Value creation has always been at the core of the RM movement and a special field of interest. For example, in their seminal work “The Evolution of Relationship Marketing”, Sheth & Parvatiyar (1995) refer to the shift from value exchanges (the focus of the transactional perspective) towards value creation (relational perspective). The strong link between value creation and RM is also emphasised by the term “value creation relationship” (p. 403) used by the authors.

The following sections will introduce RM and highlight those elements which are relevant for achieving this research’s objectives and answering the research questions presented. First, the overall concept of RM is introduced in specific sections dedicated to its evolution and theoretical basis. As many different approaches towards RM exist today, a discussion on relevant definitions is conducted afterwards with the development of a relevant definition for this study concluding the

section. Following this, relationship value as a key concept of RM and this research is presented in detail. The subsequent two sections detail antecedents as well as outcomes of relationship value before the last section concludes with a summary.

2.2.1 Evolution of RM

The development of RM has been widely discussed in marketing literature with respect to the evolution of relationship orientation over a longer period of time as well as the specific emergence of RM as a result of it since the 1970s and 1980s.

2.2.1.1 The History of Relationship Orientation

The discussion on the evolution of RM has significantly been influenced by Sheth and Parvatiyar (1995). While the authors agree that RM is a paradigm shift from a transactional view towards a relational one in the 1980s and 1990s, they argue that “it is really a rebirth of marketing practices of the pre-industrial age” (Sheth and Parvatiyar, 1995, p. 399). The argumentation is based on three main evolutionary phases that relationship orientation has undergone: it moved from a high relationship orientation in the pre-industrial era to a lower focus in the industrial era with a comeback in the post-industrial era – summarised by the authors through a U-shaped line chart.

First, the economy in the pre-industrial era was mainly build on agricultural grounds and the trade of art and artisans with farmers and artists directly selling on local markets, thus closely interacting with their consumers (Sheth & Parvatiyar, 1995). Hereby it was not rare that customized products were the result of healthy and long-time relationships (Shrivastava & Shrivastava, 2012). Overall, the producer fulfilled the role of the manufacturer and the retailer.

Second, due to the rise of mass consumption and mass production in the wake of industrialization, transactional marketing has gained more relevance (Cundiff, 1988). In need to find new markets and customers for the increasing level of stock, marketers more and more put emphasis on the sales process and the promotion of goods with middlemen such as distributors, wholesalers and other intermediaries appearing on the markets, separating the producer form the consumer (Bartels, 1962). Relationships still existed but with less intensity and priority (Shrivastava &

Shrivastava, 2012). Operational interest such as the efficiency of marketing channels and the transportation of goods between the producer and the consumer was the main purpose of marketing practices (Shaw, 1912; Bartels, 1976; Sheth et al., 1988). However, caused by increasing competition also customer retention and brand loyalty gained interest for marketers. Moreover, marketing techniques such as segmentation and targeting were developed in order to create a brand image, appropriate advertising and market planning (Peterson, 1962).

Third, in the wake of increasing technological progress, globalization and deregulation, the marketplace transformed and the post-industrial era began (Sheth and Parvatiyar, 1995). The power of choice began to move more and more towards the customer and away from the producers (Jolson, 1997). However, during the 1950s and 1960s, the marketing mix and inherently mass marketing were still the prevailing practices used to generate sales and profits, which was not questioned for a long time (Webster, 1992; Grönroos, 1997). In the 1970s and 1980s, RM was put on the focus due to the increasing opportunities to directly interact with customers and consumers, as well as the need to partner in order to create value (Vargo, 2009).

2.2.1.2 The Emergence of RM

In marketing literature there is consensus that the roots of RM lie in B2B marketing and service marketing (Grönroos, 2000; Ballantyne et al., 2003). The foundationally work has to a large degree been done in the industrial marketing and purchasing (IMP) group from the mid-1970s to the early 1980s (e.g. Hakansson & Ostberg, 1975; Arndt, 1979 Ford, 1980). With the research taking place in the B2B marketing context, the focus was on the embedded-nature-of-value-creation, referring to the idea that value creation often requires inter-organisational relationships (Lindfelt & Törnroos, 2006; Vargo, 2009; Helle, 2011). Just a couple of years later, the term “relationship marketing” was first introduced by Berry (1983) in services marketing. Compared to the focus in the B2B marketing context, however, Berry and other scholars in the services marketing field focused on the interaction required between service provider and consumer, as the service production and consumption is inseparable (Zeithaml et al., 1985).

Despite the two different starting points as well as early criticism referring to RM as “another management fad or the emperor’s new clothes” (Veloutsou et al., 2002), RM is widely considered as a paradigm shift in marketing (Grönroos, 1994; Brodie et al., 1997; Gummesson, 1997). The paradigm shift refers to the understanding that RM represents the opposite of transaction marketing and has become, or at least is on its way to become, the dominant marketing perspective in today’s post-industrial era (e.g. Harker & Egan, 2006). As just one example of the differences between the two paradigms, Wikstrom (1996) refers to the fact that customers in the transaction marketing paradigm were limited to the acceptance or rejection of the product offer with the suppliers unsure about the reasoning of the decision made. Hennig-Thurau & Hansen (2000) refer to various other differences between RM and transaction marketing, including differences in the general approach (interaction-related vs. action-related), perspective (evolutionary-dynamic vs. static), basic orientation (implementation-oriented vs. decision-oriented), fundamental strategy (maintenance of existing relationships vs. acquisition of new customers), dominant quality dimension (interaction vs. output), and production focus (mass customization vs. mass production). While RM is sometimes referred to as a theory (e.g. Morgan & Hunt, 1994; Lewin & Johnston, 1997), strategy (e.g. Grönroos, 1995; Payne et al., 2005), or concept (e.g. Christy et al., 1996; Hennig-Thurau et al., 2002), consensus is reached today that RM can help to create value and support the competitive position of firms (Berry, 1995; Gruen, 1997; Morgan & Hunt, 1999).

2.2.2 Theoretical Perspectives on RM

The RM field developed taking into account various theoretical perspectives, primary steaming from economics, law and social psychology (Möller & Halinen, 2000; Parvatiyar & Sheth, 2001). In addition to ST which will be extensively discussed in section 2.3 as one of the main literature streams of this research, two theoretical perspectives have been identified as the underlying framework of this research on value creation in UIR: resource dependence theory (RDT) and relational exchange theory (RET).

2.2.2.1 Resource Dependence Theory

RDT in its core proposes that organisations enter relationships to obtain resources helping them reduce uncertainty (Pfeffer and Salancik, 1978). Based on and extending social exchange theory (e.g. Emerson, 1962), RDT makes two primary assumptions:

- a) hardly any organisation possesses all critical resources internally, and thus depends on the resources of other organisations (e.g. Heidi, 1994)
- b) organisations aim to reduce uncertainty and dependence by strategically managing their relationships with those owning the required resources (e.g. Cyert & March, 1963; Ulrich & Barney, 1984)

While the resource-based view (RBV) of a firm focuses more on internal resources as the basis for competitive advantage (e.g. Barney, 1991), RDT has an inter-organisational nature seeing organisations as an open system (Pfeffer and Salancik, 1978). The core idea is that organisations combining internal and external resources can create superior performance and value compared to those who only focus on internal resources (Harrison et al., 1991; Dyer & Singh, 1998; Gulati & Sytch, 2007), finally enabling them to gain a sustainable competitive advantage (Paulraj & Chen, 2007). While Hillman et al. (2009) refer in their review to RDT as “one of the most influential theories in organizational theory and strategic management” (p. 1404), Davis & Cobb (2010) acknowledge an “unfortunate period of dormancy” (p. 38), but also see growing interest in RDT due to the recent changes in the economic and political environment.

While RDT has been extensively discussed with respect to mergers and acquisitions, joint ventures and boards of directors, political action and executive succession (for an overview see Hillman et al., 2009), it has also focused on organisational relationships such as strategic alliances, research and development (R&D) agreements as well as research consortia (e.g. Oliver, 1990; Barringer & Harrison, 2000), thus making it an applicable theory in the context of this study.

The dependence of universities and businesses on each other's resources can be highlighted by looking at the motivations behind their involvement in UIR. For example, universities face a significant cut in state support (van Rossum & Cabo, 1995; Karlsson, 2004) and thus depend on third-party funding not only coming from

public organisations, but also from private businesses. In addition, insights into and information on today's business practice is required to update university research and teaching (Poyago-Theotoky et al., 2002). On the other hand, businesses depend on the resources of universities. As Plewa et al. (2005) highlight, businesses see various types of value they can gain from universities, including knowledge, technology and human gain, as well as new contacts and access to networks. The authors also outline, that retention has been named in their qualitative study by both universities as well as businesses as a key value of UIRs. As a result, UIRs can be seen as a strategy of the parties to reduce uncertainty in the long term.

To summarise, RDT refers to the idea that organisations enter relationships to acquire resources helping them to reduce uncertainty and dependence, and ultimately to create superior value and competitive advantage. The application of the RDT perspective in this research has been justified by highlighting that both universities and businesses involved in UIRs depend on the resources of each other, and that the reduction of uncertainty is a key factor in these relationships.

2.2.2.2 Relational Exchange Theory

RET refers to the basic notion that the stakeholders of a relationship believe that the results of their collaboration will be higher than results which could be achieved through other forms of exchange (e.g. transactional exchange) (Goles & Chin, 2002). As a result, the stakeholders invest resources for maintaining and developing the relationship (Anderson & Narus, 1984; Dwyer et al., 1987). The focus of RET on relationships "involving the transfer of resources for mutual benefit of the involved actors" (Wuellenweber et al., 2009, p. 532) highlights the centrality of resources, and thus the linkage between RET and RDT.

RET developed out of two main disciplines, namely marketing (e.g. Anderson & Narus, 1984; Dwyer et al., 1987) and law, with the latter primary put forward by Macneil (e.g. 1974, 1978, 1980). The theory highlights that the governance mechanisms were missing for those exchange forms (such as alliances, joint ventures and other forms of relationships) that could not be classified as either market transactions or vertical integration (hierarchies), the two types presented in transaction cost economics (e.g. Williamson, 1975, 1979). Relational governance, compared to transactional governance, is based on relational norms prescribing commitment and

proscribing opportunism (Macneil, 1980; Joshi & Stump 1999). Heide and John (1992, p. 34) provide a reasoning for such a behaviour by stating that “Relational norms promote subordination of individual interests by engendering a win-win exchange atmosphere; and as the partners will not like to jeopardize it so they will refrain from acting opportunistically”. As Blies and Ivens (2006, p. 353) highlight, “norms associated with relational exchanges are those that might be expected to enable trust and commitment to develop”. Thus, in order to maximise value creation in the relationship, the thinking and acting of the stakeholders should be directed to norms that facilitate the creation of trust and commitment, as also highlighted in the commitment-trust theory of Morgan and Hunt (1994).

The focus of RET on the relationship rather than a transaction is also illustrated by Kaufmann and Stern (1992), who refer to the relationship as the reference point of the exchange in RET, not the individual or a transaction. Transactions should therefore rather be seen as a consequence of a relationship (Tuunanen et al., 2011).

This research looks at value creation in UIRs with a focus on relationships with a high degree of interaction and a medium to long-term focus (see section 1.2.3). As a result, the research is limited to collaborative research, contract research, staff mobility (placements) as well as consulting, and excludes transactional-based interactions such as technology licensing. The relational perspective has been highlighted in numerous publications on UIR, with many specifically investigating trust and commitment in UIRs (Barnes et al., 2002; Mora-Valentin et al., 2004; Plewa & Quester, 2006; Rampersad et al., 2010). Against this background, RET is seen as an adequate theoretical perspective for this research.

To summarise, RET refers to the idea that relationship stakeholders invest resources in a relationship as they believe that the results that can be achieved through the exchange are higher than those which could be achieved through another form of exchange. Thus, the relationship is primarily governed by relational norms, not contractual norms. The application of the RET perspective in this research has been justified by the study’s focus on highly interactive, long-term oriented UIRs which require trust and commitment to be built.

Having presented RDT and RET as the two main theoretical perspectives of RM in this research, the following section continues with a definition of RM.

2.2.3 Definition of RM

While RM can be considered as an integral part in today's marketing literature, academics and practitioners are still in search for a unified definition. In order to provide a clear understanding of the RM term in this study, the following section first discusses different approaches before the later section develops a RM definition which will be used throughout this study.

2.2.3.1 Discussion of Different Approaches

The first usage of the term RM leads back to Berry (1983). Since its introduction in 1983, however, various definitions have evolved, leading to confusion in the usage of the term and discussions what the fundamental meaning of RM is. The most extensive attempt to develop a common conceptual ground and a general definition of the term has been made by Harker (1999). With 117 different sources being the sample of the study, he analysed 26 definitions using content analysis. The following table presents the seven primary constructs found among the analysed definitions.

| Primary construct | Other common constructs |
|--------------------------|-----------------------------------|
| <i>Creation</i> | Attracting, establish, getting |
| <i>Development</i> | Enhancing, strengthening |
| <i>Maintenance</i> | Sustaining, stable, keeping |
| <i>Interactive</i> | Exchange, mutually, co-operative |
| <i>Long term</i> | Lasting, permanent, retaining |
| <i>Emotional content</i> | Commitment, trust, promises |
| <i>Output</i> | Profitable, rewarding, efficiency |

Table 1: Conceptual Categories of RM (Harker, 1999)

Taking the most common used definition by Grönroos (1994) as well as Harker's (1999) definition derived from his analysis, Plewa (2005) discusses their applicability in UIRs, providing a good basis for a discussion of the RM term for this study (here it has to be noted that Plewa refers to a later paper of Grönroos, which however, contains the same definition as the paper referred to here). In order to follow up the discussion of Plewa, both definitions are presented below:

“RM is to identify and establish, maintain and enhance and when necessary also to terminate relationships with customers and other stakeholders, at a profit, so that the objectives of all parties are met, and that this is done by a mutual exchange and fulfilment of promises” (Grönroos, 1994, p. 9)

“An organisation engaged in proactively creating, developing and maintaining committed, interactive and profitable exchanges with selected customers [partners] overtime is engaged in relationship marketing.” (Harker, 1999, p. 16)

Plewa (2005) begins her discussion by outlining two key differences in the definitions. First, Harker (1999) refers to exchanges as the object of RM while Grönroos (1994) named relationships. Plewa’s (2005) critique on the former definition is based on the fact that exchanges might limit the understanding of the RM concept as it does not specifically highlight the existence of social and technical bonds to relationships. The second difference Plewa (2005) points out is the bilateral nature indicated by Grönroos (1994) but missing in Harker’s (1999) definition. The creation of mutual benefits or mutual value is a core element of successful relationships and should thus be integrated in a RM definition (Plewa, 2005).

Following the comparison, Plewa (2005) also outlines shortcomings of both definitions. First, according to the author, the emphasis on profits might subtextually exclude non-economic value (such as social or emotional value), which is however recognised as a central element in relationships (Mandják & Durrieu, 2000). Therefore, the usage of the term value instead of profit should be preferred as it provides a clearer reference to non-economic aspects (Plewa, 2005). Second, Plewa (2005) criticises the fact that neither Grönroos’ (1994) nor Harker’s (1999) definition refer to the termination of relationships as part of RM. While the importance of relationship termination is widely accepted due to the inherited risks of failure of relationships (Lee & Cavusgil, 2006) and should thus be integrated, Plewa’s (2005) critique on both definitions, however, is not understandable as Grönroos (1994) clearly refers to termination by stating “when necessary also to terminate relationships” (p. 9).

Integrating both Grönroos' (1994) and Harker's (1999) definition, and the shortcoming with respect to the clear integration of non-economic value, Plewa (2005) developed the following RM definition for her study on UIRs:

“RM involves proactively identifying, creating, developing, maintaining, enhancing and, when necessary, terminating relationships that are trusting, committed and interactive in nature with selected customers [partners], in order to create mutual value over time” (Plewa, 2005, p. 25)

Building on the discussion above, the following section will now develop a RM definition to be used for this study.

2.2.3.2 Relevant Definition for this Thesis

While Plewa's (2005) definition provides a good basis for a RM definition in the context of UIR, three shortcomings should be addressed for the purpose of this study. First, her definition refers to customers and partners as an organisation's counterpart in the relationship. Acknowledging that some scholars refer to differences between customers and consumers (e.g. Euesden et al., 1990; Baines et al., 2012; Medina & de Mesquita Spinola, 2010) and the fact that both should be included in this research, the broader concept of stakeholders seems to be more appropriate for this research in order to not exclude any individual or organisation by the usage of specific terms.

Second, Plewa's (2005) definition misses a statement of the main activity in the relationship. While this is a valid approach in order to prevent a strong limitation of the definition in terms of its scope, it might limit the understanding of the definition. As this research builds upon the RDT perspective (see section 2.2.2.1), the exchange of resources can be considered as the main activity in the relationship and should thus be integrated in the definition in order to contribute to its comprehensibility.

Third, current definitions of RM lack a direction of the value generated. In his book “What Customers Want”, Ulwick (2005), for example, differentiates in his outcome-driven innovation concept between “increase”, “maximise”, “reduce” and “minimize” as directions for the outcomes customers want to achieve. Bennett

(1996), also referred to in the work of Harker (1999), recognises a shift from maximising profits on individual transactions towards the formation of more permanent relationships. While he adds a direction (“maximising”) to the statement on transactions, he misses to add this direction to the relationship concept. Other scholars specifically point to the maximisation of customer lifetime value (CLV) as a key element of RM (Bolton, 1998; Christopher et al., 2013). The CLV concept refers to the net present value that can be attributed to a customer (Berger & Nasr, 1998), thus integrating the long-term perspective of value creation. In line with the argument stated above to use the broader concept of stakeholders instead of customers and partners, an adaption of the CLV concept towards the not commonly used term stakeholder lifetime value (Heidt & Scott, 2012; Singh & Jain, 2013) would seem appropriate to refer to individual value creation. However, as RM takes a relationship perspective, the definition should highlight that the relationship is the unit of analysis and thus refer to relationship lifetime value.

To summarise, three changes are proposed to address the shortcomings of Plewa’s (2005) definition with respect to this research. First, the terminology customers and partners will be replaced by the term stakeholders. Second, the exchange of resources will be added as the main activity of the relationship in order to contribute to the comprehensibility of the definition. Third, the term “maximising” will highlight the direction of the value creation process with the term relationship value creation specifying that the value creation process has to be considered on the relationship level, not the individual level.

The following definition includes the three proposed changes and will be used for this study:

“Relationship Marketing involves proactively identifying, creating, developing, maintaining, enhancing and, when necessary, terminating relationships that are trusting, committed and interactive in nature with selected stakeholders in order to facilitate the exchange of resources. The ultimate goal is to maximise relationship value creation and the creation of sustainable competitive advantages.”

Based on this definition, the following section details the concept of relationship value.

2.2.4 Relationship Value

The concept of relationship value in marketing research has mainly received attention within the last two decades (e.g. Anderson & Narus; 1999; Raval and Grönroos 1996; Ulaga, 2003). Today, most researchers agree that the concept of value is “the cornerstone of business marketing management” (Anderson & Narus, 1999, p. 5) or as Holbrook (1994, p. 22) postulates the “fundamental basis for all marketing activity“. Accordingly, value and its perception as the result of these marketing activities are seen as a first order element of RM (Peterson, 1995; Huber et al., 2001; Callarisa et al., 2002). In line with the changing focus from transactional marketing toward RM, “the most recent development has been to consider customer value from the viewpoint of relationship marketing [...] described as ‘relationship value’” (Payne and Holt, 1999, p. 16).

The next sections outline relationship value and its underlying concept of value, including a discussion on its main characteristics. Following this, different approaches aiming to structure the dimensions of relationship benefits and sacrifices are presented.

2.2.4.1 Definition and Characterisation of the Concept

Early definitions of relationship value relate to an exchange view of marketing (Baggozzi, 1975). This view states that exchanges happen, since the parties involved believe they will obtain benefits, resulting in a sustainable exchange with increasing net-value perceived (Kotler, 1972). Overall, most research has focused on the transactional value of the product offering rarely mentioning relational dimensions (Dwyer & Tanner, 1999). Jackson (1985) as an example explains it as every monetary benefit that results from future and current transactions. However, in the wake of the globalization, information society and increasing competition marketers highlight that it comprises more than an economic dimension (Anderson et al., 1993). Therefore, relationship value exceeds the simple comparison between the price of a product and its quality, a common view in customer research (Gassenheimer et al, 1998). Against this background, Zeithaml (1988, p. 14) refers to “the trade-off between received and given components with reference to products, services and relationships”, thus clearly pointing towards the value of relational factors. In line with this, Raval and Grönroos (1996) point out that with the possibility

to imitate products not the product itself decides on the perceived value but the relationship combined with it. The authors propose, that the “relationship itself might have a major effect on the total value perceived” (p. 23). As a result, the concept of relationship value goes beyond the product and/or service, and includes a relationship component so that Raval and Grönroos (1996) point out that customers might shift from evaluating market offerings towards evaluating the entire relationship.

Overall, four distinct characteristics of the (relationship) value concept can be acknowledged (Uлага & Eggert, 2006; Corsaro & Snehota, 2010):

1. Value is a subjective concept (Kortge & Okonkwo, 1993).
2. Value perceptions are relative to competition (Anderson & Narus, 1999).
3. It is conceptualized as a trade-off between benefits and sacrifices (Zeithaml, 1988).
4. Benefits and sacrifices can be multi-faceted (Grisaffe & Kumar, 1998).

First, relationship value is perceived subjectively. Anderson et al. (1993), among others, point out that the nature of value is of perceptual nature (see also Zeithaml, 1988; Kortge & Okonkwo, 1993). Each of the parties engaged is expected to have a different understanding of the value gained when entering a business relationship (Perkins, 1993). Additionally, the value perception can also differ for the same person depending on the situation (Flint et al., 1997; Gallarza & Saura, 2006). Thus, the perceived value of a relationship highly depends on each party and single person involved as well as on the situation. Raval and Grönroos (1996, p. 22) relate this to the “different personal values, needs and preferences as well as the financial resources of customers, since these factors clearly must influence the perceived value”. As a result, one customer or buying agent might expect contrasting outcomes of a supplier’s delivery than his colleague (Perkins, 1993).

Second, the value of a relationship is evaluated in comparison to the competition (Gale, 1994, Uлага & Eggert, 2006). Buyers consider the value of a certain product offering on the market by comparing it to others of competing businesses (Anderson & Narus, 1999). On a broad level, this is closely linked to the social exchange theory, which claims that human relationships are formed by the use of a

subjective cost-benefit analysis and the comparison of alternatives (Thibaut & Kelley, 1959).

Third, relationship value is determined by a trade-off between benefits and sacrifices. In simple terms, each participant evaluates the respective relationship based on “what you get” (benefits) and “what you give” (sacrifices) (Zeithaml, 1988, p. 14).

Fourth, researchers agree on the characteristic that benefits and sacrifices seem to be multi-faceted (Zeithaml, 1988; Monroe, 1990; Raval & Grönroos, 1996). Despite some disagreement about the exact dimensions, it is acknowledged that there are multiple benefits and sacrifices influencing the overall value perceived. Several marketing scholars have tried to identify the underlying dimensions of the benefits and sacrifices, as presented in the next section (Wilson & Jantrania, 1994; Raval & Grönroos, 1996; Lapierre, 2000; Eggert & Ulaga, 2002; Walter et al. 2003; Möller & Törrönen, 2003; Ulaga & Eggert, 2005).

In summary, the concept of relationship value goes beyond the traditional customer value approach as it acknowledges that not only a product or service, but also the relationship itself can be valuable. The value of a relationship can be characterised by its subjective nature, the value assessment being influenced by competition, its conceptualisation as a trade-off between benefits and sacrifices, as well as the multi-facet nature of the benefits and sacrifices dimensions.

The next section is dedicated to the above described multi-faceted nature of the benefits and sacrifices elements of the value and will highlight different conceptualisations and empirical findings.

2.2.4.2 Benefits and Sacrifices Dimensions

Marketing scholars have tried to identify the dimensions of benefits and sacrifices determining relationship value. However, since they can only be perceived in the long-term, it tends to be rather difficult to fully comprehend all the factors that have an influence on relationship value (Möller & Törrönen, 2003).

According to Anderson et al. (1993, p. 5) value in business markets is “the perceived worth in monetary units of the set of economic, technical, service, and social benefits received by a customer firm in exchange for the price paid for a

product offering, taking into consideration the available alternative suppliers' offerings and prices". Their definition is one of the first to consider the relationship aspects by incorporating service and social benefits.

Wilson and Jantrania (1994) revised this train of thought by saying that the value created from relationships contains four specific areas: social, economic, political and religious aspects. Out of these, they further take three meta-dimensions encompassing relationship value: (1) an economic dimension meaning a reduction in costs occurring from a relationship, (2) a behavioral dimension, which stands for such elements as social bonding and trust, and a (3) a strategic dimension, which stands for the core competencies developed.

Others define relationship value by the gains in reputation, transfer of knowledge, access to networks and also by the individual's feelings and emotional value created (Ford & McDowell, 1999; Barnes, 2003; Sweeney & Webb; 2002). Particularly Barnes (2003) puts emphasis on the importance of distinctive emotional values such as reliance, commitment, respect and shared history.

The following table outlines key authors having dedicated work towards the conceptualization of relationship value.

| Author(s) | Conceptualization of relationship value | | Empirical foundation |
|--|--|---|---|
| | <i>Benefit dimensions</i> | <i>Sacrifice dimensions</i> | |
| <i>Anderson et al. (1993); Anderson & Narus (1999); Anderson et al. (2000)</i> | <ul style="list-style-type: none"> • Economic benefits • Technical benefits • Service benefits • Social benefits | <ul style="list-style-type: none"> • Price | None |
| <i>Wilson & Jantrania (1994)</i> | <ul style="list-style-type: none"> • Economic benefits • Strategic benefits • Behavioral benefits | <ul style="list-style-type: none"> • Price | None |
| <i>Ravald & Grönroos (1996)</i> | <ul style="list-style-type: none"> • Episode benefits • Relationship benefits | <ul style="list-style-type: none"> • Episode sacrifices • Relationship sacrifices | None |
| <i>Grönroos (1997)</i> | <ul style="list-style-type: none"> • Core solution • Additional services | <ul style="list-style-type: none"> • Price • Relationship costs | None |
| <i>Gwinner et al. (1998)</i> | <ul style="list-style-type: none"> • Confidence benefits • Social benefits • Special treatment benefits | | None |
| <i>Lapierre (2000)</i> | <ul style="list-style-type: none"> • Product related benefits • Service related benefits • Relationship related benefits | <ul style="list-style-type: none"> • Price • Relationship related sacrifices | Survey among 209 and 129 Purchasing executives in the Canadian IT and finance sector. |
| <i>Uлага (2003)</i> | <ul style="list-style-type: none"> • Product benefits • Delivery benefits • Service benefits • Know-how benefits • Time-to-market benefits • Social benefits | <ul style="list-style-type: none"> • Price • Process cost | In-depth interviews with purchasing managers. |
| <i>Möller & Törrönen (2003)</i> | <ul style="list-style-type: none"> • Efficiency function • Effectiveness function • Network function | | None |
| <i>Walter et al. (2003)</i> | Direct functions <ul style="list-style-type: none"> • Quality • Volume • Safeguard Indirect functions <ul style="list-style-type: none"> • Market function • Scout function • Innovation function • Social support function | Direct function <ul style="list-style-type: none"> • Cost reduction | Survey of 230 purchasing managers in German manufacturing companies |

Table 2: Dimensionality of Relationship Value (based on Ulaga, 2003, p. 679 and Ulaga and Eggert, 2005, p. 78)

Most notably is the research from Ulaga (2003) and also Ulaga and Eggert (2005) who recognized the limited empirical research in this area and undertook in-depth interviews among purchase managers in order to extract the value dimensions based on a grounded theory approach. As a result, they came up with eight dimensions responsible for value creation in collaborative relationships, defining relationship value as a “trade-off between product, service, know-how, time-to-market and social benefits, as well as price and process costs in a supplier relationship, as perceived by key decision-makers in the customer’s organization, and taking into consideration the available alternative supplier relationships” (Ulaga, 2003; Ulaga & Eggert, 2005, p. 9). The results are widely acknowledged in the field and are further discussed in detail in order to provide a better understanding of the determinants which compromise the relationship value concept.

Since the product range offered by a supplier is the primary reason for a buyer seeking a supplier relationship, *product benefits* are essential (Homburg & Rudolph, 2001). Thus, Ulaga and Eggert (2005, p. 78) regard them to be “a key dimension of relationship value”. Previous marketers have used terms such as technical, economical (Anderson et al., 1993) or the core solution (Grönroos, 1997). Furthermore, they acknowledge that in particular in B2B relationships, buyers are looking for an entire solution. Thus, the ability of suppliers to provide the demanded level of service is important in order to differentiate themselves from competitors (Anderson & Narus, 1995). This is described by the term *service benefits* (Ulaga, 2003). Moreover, *delivery benefits* belong to the construct, because failed delivery deadlines by suppliers cause major problems for the buyers. Additionally *supplier know-how* adds positively to the overall perceived relationships value. By the use of the product and market expertise of a distinct supplier, a buyer can gain a competitive advantage over competition (Hogan & Armstrong, 2001). *Time-to-market benefits* are also considered to be important within a buyer-supplier relationship as in today’s markets, businesses must be able to provide their products at an increased level of speed. As a result, they are dependent on flexible supply of resources (Ulaga, 2003). This has evolved into a strategic advantage all over the supply-chain (Wilson & Jantrania, 1994). *Social benefits* represent the last among the relationship benefits. Since people are the central element the success or failure of relationships

depend on (Wilson & Jantrania, 1994), they also play a role in the relational exchange.

However, two main relationship sacrifices need to be considered as well. The first one is the *price* paid for the supplier offering. Several authors have mentioned this as a main sacrifice that has to be taken into account (e.g. Grönroos, 1997; Lapierre; 2000). The second relationship sacrifice represents *process costs*. Ulaga & Eggert (2005) describe them as the cost to achieve a buyer-supplier relationship such as time taken to coordinate with the other company, e.g. the time needed to develop a product together or transportation and warehousing costs. However, not only such external costs but also internal costs may arise. These occur when the buyers need to integrate the supplier's products into their processes.

In a more recent study, Ulaga and Eggert (2006) adapted the results to a concept of three formative relational sacrifices stated by Cannon and Homburg (2001): the *core offering*, the *sourcing process* and the *customer operations*. The difference of their concept to the model proposed by Ulaga (2003) is that in addition to the direct costs, they subdivide the process costs into two separates, acquisition costs, which occur while acquiring and storing, and operation costs connected to their primary business. Furthermore, they have used this three-level separation to conceptualize relationship benefit as well. They combined product and delivery benefits into core benefits. Personal and service benefits were consolidated to the sourcing process benefits. Lastly, know-how and time-to-market benefits represent the operation benefits of a buyer-seller-relationship.

As a result, Ulaga & Eggert (2006) developed a 2×3 matrix which is shown in the below table.

| Sources of value offering | Relationship value dimension | |
|----------------------------------|---|---|
| | <i>Relational benefits</i> | <i>Relational costs</i> |
| Core offering | <ul style="list-style-type: none"> • Product benefits • Delivery benefits | <ul style="list-style-type: none"> • Direct costs |
| Sourcing process | <ul style="list-style-type: none"> • Service benefits • Social benefits | <ul style="list-style-type: none"> • Acquisition costs |
| Customer operation | <ul style="list-style-type: none"> • Supplier-know-how benefits • Time-to-market benefits | <ul style="list-style-type: none"> • Operation costs |

Table 3: Conceptual Framework of Relationship Benefits and Sacrifices (Ulaga & Eggert, 2006, p. 122)

Others such as Berry & Terry (2008) also embraced this conceptual framework for their empirical study of relationship value. However, as the focus of their study differs they refer to relationship cost savings instead of relationship sacrifices. The authors focus on cost advantages and switching costs in order to determine relationship value. Cost advantages link to value since it pays respect to the characteristic that value is perceived by comparing competing offerings (Monroe, 1990). Furthermore, they consider switching costs, because various literature mentions it to be an important influence on value (Oliver, 1997; Sharland, 1997; Lee et al., 2001).

2.2.5 Outcomes of Relationship Value

Having introduced the concept of relationship value, the next sections will detail key outcomes of relationship value, namely satisfaction, WOM, the intention to renew (maintain) the relationship, as well as the intention to expand activities of the same sort beyond the current relationship.

2.2.5.1 Satisfaction

Satisfaction is widely acknowledged as a key concept in marketing (e.g. Grönroos, 2006) and has extensively been researched in the field of RM (e.g. Crosby & Stephens, 1987; Hennig-Thurau & Klee, 1997; Hennig-Thurau & Hansen, 2000; Leverin & Liljander, 2006).

In literature, customer satisfaction is defined in two different ways – as either an outcome or as a process (Hahn, 2002; Schütze, 1992). The outcome definition characterises satisfaction as the result of an evaluation process (Vavra, 1997). Howard and Sheth, for example, define satisfaction in their model of a purchasing decision process as “the buyer’s cognitive state of being adequately or inadequately rewarded for the sacrifices he has undergone” (Howard & Sheth, 1969, p. 145). On the contrary, also the process itself can take centre stage in a definition of satisfaction (Hahn, 2002). Thereby, “perceptual, evaluative and psychological processes” (Vavra, 1997, p. 4) which contribute to satisfaction are accentuated (Hunt, 1977; Engel & Blackwell, 1982).

Most definitions of satisfaction are based on the outcome approach, however, researchers’ perceptions differ in terms of how the result comes about (Hahn, 2002): For example as “overall evaluation” (Fornell, 1992, p. 11), as “psychological state”

(Howard & Sheth, 1969, p. 145), as “global evaluative judgement” (Westbrook, 1987, p. 260) or as “summary attribute phenomenon” (Oliver, 1992, p. 242). Furthermore, there is no consent if satisfaction results from cognitive and/or affective processes (Homburg & Giering, 1999).

The customer satisfaction / dissatisfaction (CS/D) model is the most prevalent (Yi, 1990; Roest, 1999; Homburg & Stock, 2003) and defines satisfaction as an “outcome of a complex [post-choice] information processing process” (Herrmann et al., 1997, p. 100) concerning a specific purchase decision (Vavra, 1997). The model is based on the assumption that customers evaluate their satisfaction with a product or service by comparing perceived performance with expected performance (Gerson, 1994; Anton, 1997). The following figure shows the CS/D model graphically.

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Figure 2: The CS/D Model (Following Homburg & Stock, 2003, p. 21)

First, expected performance is understood as a customer’s set of assumptions regarding a product or service performance (Homburg & Stock, 2003). Customers use expectations as a reference point (comparison standard) on which perceived performance will be measured (Ölander, 1977). However, to date there is no consent which standards (dimensions) customers apply. Due to this, several approaches are found in literature, e.g. from Miller (1977), Rudolph (1998) or Fournier and Mick (1999) just to name some. Although comparison standards cannot be determined without fail, it can be assumed that customers take into account several standards simultaneous or successive (Tse & Wilton, 1988). Because integration and

weighting of these standards change according to the customer's circumstances (Herrmann, 1998), the construct can be regarded as dynamic (Schütze, 1992). As a result, expectations can be raised and influenced e.g. by personal needs, experiences or even by corporate communication strategies (expectation management) (Bidmon, 2004).

Second, perceived performance acts as the other building block having an effect on the comparison process. Contrary to expected performance, literature pays less attention to this component (Hahn, 2002). Just as expected performance, the overall perceived performance is a construct of differently weighted elements (Schütze, 1992; Borth, 2004). Perceived performance reflects the performance level of a product or service and can be differentiated in objective and subjective (Tse & Wilton, 1988). However, researchers as well as practitioners agree that only the subjective perception is relevant for customer satisfaction (Borth, 2004). Due to the fact that the expectation is one of several factors (Schütze, 1992; Borth, 2004) which influence the subjective perception, perceived performance should only be dissociated from expected performance on the conceptual level (Hahn, 2002).

Third, the comparison component compares perceived performance with expected performance in order to evaluate the performance of a product or service (Gerson, 1994; Anton, 1997). The resultant congruence or divergence is expressed as customer's confirmation, or positive or negative disconfirmation (Herrmann et al., 1997). Positive disconfirmation occurs when the perceived performance exceeds the expected performance, whereas negative disconfirmation occurs when the perceived performance does not meet the customer's expectations (Homburg & Rudolph, 1997). Confirmation, on the other hand, takes place when expected performance is matched by perceived performance (Homburg & Rudolph, 1997). Woodruff & Gardial (1996) also refer to a "zone of indifference" which means that the comparison standard does not have to be matched exactly. Lindenfelder et al. (2000) agree with this and refer to a zone of tolerance in which customers confirm their expectations. But ambiguity remained on the way how customers draw the comparison (Bidmon, 2004). While some researchers assume that customers compare the perceived and expected performance unconsciously (latent), others believe in a conscious (manifest) process (Hahn, 2002). Pieters et al. (1995), for example,

assent to the second view and developed the “customer-as-a-bookkeeper model” (Pieters et al., 1995, p. 30 cited through Bidmon, 2004, p. 60).

Fourth, in addition to the result of the comparison process, a lot of other external factors influence the satisfaction decision (Hahn, 2002). Recommendations, for example, are able to remove doubts (cognitive dissonances) after the decision-making process and have therefore an impact (von Wangenheim, 2003). Furthermore, the perceived justice, emotions and situational circumstances are regarded as magnitudes of influence in literature (Hahn, 2002). Therefore, the result of the comparison process cannot be equated with customer satisfaction/dissatisfaction and is, hence, understood as a pre-stage of building customer satisfaction (Hahn, 2002)

Fifth, combining the results of the comparison process with the influencing external factors, customers get to a result of satisfaction, indifference or dissatisfaction. The majority of researchers in the area of satisfaction and quality measurement accept the basic statements of this model as true. However, there are different views whether the confirmation of expectations is sufficient or if expectations have to be exceeded (Richter, 2005). Therefore, some researchers speculate that satisfaction would only occur when a provider outperforms (Kaiser, 2002) and awakes enthusiasm (Lindenfelder et al., 2000).

The impact of relationship value on satisfaction has been discussed in many studies. For example, Ulaga & Eggert (2006) have shown in their empirical study on US manufacturing companies that relationship value has a significant influence on satisfaction. The relationship has also been found to be stronger than the impact of relationship value on other relationship outcomes, such as trust and commitment. Cater and Cater (2009) researched the relationship between determinants of relationship value and satisfaction. Based on the concept and measures of Ulaga and Eggert (2006), the authors found that among the seven benefits and sacrifices dimensions (direct product costs, product quality, delivery performance, supplier know-how, time-to-market, service support and personal interaction) four had a significant influence on satisfaction (direct product costs, delivery performance, supplier know how and personal interaction), thus indicating the linkage between relationship value and satisfaction on a determinant level. A positive effect of value on satisfaction has also been confirmed by Kuo et al. (2009) in their study on the mobile communication industry.

To summarise, satisfaction can be understood as the result of a comparison between perceived performance and expected performance. Past research has indicated a positive impact of relationship value on satisfaction.

2.2.5.2 Word of Mouth

Next to satisfaction, WOM refers to another outcome of relationship value which has received considerable attention in the context of RM (e.g. Kim et al., 2001; Hennig-Thurau et al., 2002).

The concept of WOM has developed along the lines of the evolution of communication. Arndt (1967) was among the early researchers who defined traditional WOM as “oral, person-to-person communication between a receiver and a communicator whom the receiver perceives as non-commercial, regarding a brand, a product or a service“ (Arndt 1967, p. 3). Two important dimensions of WOM can be extracted from the definition: the action is independent from a company and it is of bidirectional nature, thus both participants can intervene and influence. Westbrook (1987, p. 261) defines WOM as “all informal communications directed at other consumers about the ownership, usage, or characteristics of particular goods and services or their sellers“. Stern (1994) has focused on the uniqueness of WOM in comparison to advertising. She highlights that WOM is stated spontaneously in real life within conversations between a recipient and a source. Furthermore, the source does not create or pre-write the respective action (Stern, 1994). In all three definitions, the communication is bidirectional between a source and a recipient. Thus, in traditional WOM the recipient has the ability to actively participate in the communication. However, it has to be noted that the source or the recipient can initiate the referral. Studies have shown, that in almost 50% of the cases, the recipient seeks the advice (Mangold et al., 1999). Moreover Mangold et al. (1999) highlight the following characteristics of traditional WOM: personal, oral communication between non-commercial motivated parties about a product, service or brand. Additionally it has been added that WOM can also be directed towards an organization (Buttle, 1998).

In the last decades, the use of the internet for information purposes has distinctively increased. Within the development of the electronic age, WOM is now often performed virtually through online communities and social websites so that WOM

is not exclusively oral or face-to-face communicated anymore (Hennig-Thurau et al., 2004; Buttle, 1998). This specific type of WOM is referred to as electronic WOM, which is specifically different from the traditional form, since the recipient has less influence in the communication. Reviews of online users turn out to be a gradually more important source of information to potential customers. Furthermore, they are complementing and/or substituting traditional, offline WOM communication (Chevalier & Mayzlin, 2006).

In general, two directions of WOM can be distinguished: positive WOM and negative WOM (Engel et al., 1969). By giving positive WOM based on their individual attitude customers intent to state favourable referrals to other people. Negative WOM, on the other hand, discourages the choice of a brand, organization, product or service. While early evidence has shown that negative WOM seemed to have a greater impact than positive WOM (Arndt, 1967), other research, such as the one by East et al. (2008) on familiar brands, refers to a higher impact of positive WOM.

Arndt (1967) already stated that WOM could have a positive impact on growth increase and profitability. Murray (1991), for example, found out that customers in need for a service purchase particularly relied on WOM. Their reliance on personal sources was greater than for those who purchased goods. As a result, today many marketers are increasingly stressing the view that WOM and other customer-to-customer (C2C) interactions are very important for business success. Three major changes have stressed this development (Libai et al., 2010). First, due to the rise of the internet, customers are increasingly connected which is different from the past (Hennig-Thurau et al., 2010). Second, managers have more access to C2C information from various social network data sources. The analysis based on the given data is complex but implies major chances for companies to influence their strategies (Hill et al., 2006). Third, companies are realizing the broader influence of their relationships with customers. Hereby they need to focus on customer behaviour, which is motivationally driven towards a company or a brand aiming to foster customer engagement and referrals (van Doorn et al., 2010).

The impact of relationship value on WOM has been studied by several researchers. For example, Olaru et al. (2008) surveyed Australian customers of a R&D service organisation and found that the perceived value has a significant effect on WOM. In their attempt to contribute to the discussion on reflective and formative

measurement models, Lin et al. (2005) built a formative, reflective as well as a unidimensional model. Their study results show a significant effect of the perceived value on WOM in the formative and reflective model whereby the effect was not found to be significant in the unidimensional model. Sundaram et al. (1998) studied WOM on a benefits and sacrifices level and found three main triggers: product performance, response to problems and price/value perceptions. All three categories have shown to be determining positive and negative WOM, thus strongly promoting the view that the perceived value, conceptualised as the trade-off between benefits and sacrifices, influences WOM. Lastly, Hartline and Jones (1996) confirm the influence of the perceived value in a hotel service environment on WOM.

To summarise, WOM can be understood as informal communication concerning the evaluation of goods, services or brands. Past research has indicated a positive impact of relationship value on WOM.

2.2.5.3 Intention to Renew

The general idea of renewal intentions has been discussed widely in marketing literature (e.g. Plewa, 2005), partly referred to as customer retention (e.g. Rust & Zahorik, 1993; Hennig-Thurau & Klee, 1997), intention to repurchase (e.g. Olaru et al., 2008) or as part of customer loyalty (e.g. Cater & Cater, 2009). With respect to customer loyalty, Rauyruen and Miller (2007) highlight that behavioural loyalty, attitudinal loyalty and composite loyalty need to be distinguished with the former referring to the customers' willingness to renew/continue a relationship or to repurchase a certain product, and the latter referring to psychological attachments and attitudinal advocacy. Building upon the work of Rauyruen and Miller (2007), intention to renew can thus be understood as the willingness or behavioural intention of a relationship stakeholder to renew an existing relationship either with or without a break in between the relationship episodes (Hakansson, 1982), and under the same or similar conditions.

The concept of renewal intentions is closely related to the concept of commitment. In their study on collaborative R&D programs, Daniel et al. (2002) use the intention to renew a membership as the measure of commitment. Thus, the authors conceptualise commitment as an outcome of behaviour, in contrast to this research

which considers commitment as an antecedent of relationship value and further relationship outcomes. In the same line, Assael (1987, p. 665) refers to brand loyalty as “commitment to a certain brand”.

The importance of researching the concept and to implement strategies and activities to renew relationships in practice has been discussed in customer retention literature (e.g. Reichheld, 1996; Narayandas, 1998; Kamakura et al., 2003). Buchanan & Gillies (1990) provide a good overview, referring to a total of six reasons:

- “regular customers place frequent, consistent orders and, therefore, usually cost less to serve;
- longer-established customers tend to buy more;
- satisfied customers may sometimes pay premium prices;
- retaining customers makes it difficult for competitors to enter a market or increase their share;
- satisfied customers often refer new customers to the supplier at virtually no cost;
- the cost of acquiring and serving new customers can be substantial. A higher retention rate implies that fewer new customers need be acquired, and that they can be acquired more cheaply” (Buchanan & Gillies (1990, p. 524)

Complementing the benefits of longer tenure and broader relationship depth, Kamakura et al. (2003) also highlights the opportunities to learn about customers and their needs.

Several studies highlighting the effect of relationship value on the intention to renew (or similar concepts) can be found. For example, Whittaker et al.’s (2007) study in the consulting industry confirmed a positive relationship between relationship value and intentions (measured as repeating employment of the consulting firm) as well as a positive relationship between satisfaction and intentions. In contrast to this, the study of Patterson & Spreng (1997), also among consulting firms, confirmed the influence of satisfaction on intentions to renew, but no significant relationship between the perceived value and intentions could be found. Olaru et al. (2008), on the other hand, confirmed the relationship value-repurchase intention link in their study on customers of Australian R&D service organisations. Walter et al. (2000) investigated the interrelationship between relationship value, satisfaction,

trust, and commitment in the manufacturing industry whereby commitment was operationalized as the “customer's loyalty, willingness to make short-term sacrifices, long-term orientation, and intention to invest in the relationship” (p. 8). While a strong and significant relationship has been found between relationship value and commitment, it has to be acknowledged that the conceptualisation and operationalisation in the study of Walter et al. (2000) differs from the view taken in this study which focuses on the willingness to renew the relationship only. Similar results can be found in the study of Chen & Myagmarsuren (2011) where a positive relationship between the value of a relationship and intentions was confirmed, but the intentions construct did not separate the intent to renew from further elements.

While conflicting results can be found in literature, it seems valid to support Olaru et al.'s (2008) view that “Overall, customers evaluate future purchase intentions based on the value obtained from previous episodes/contacts, with relationship benefits being a proxy for expectations of future benefits.” (p. 556).

2.2.5.4 Intention to Expand

Significantly less attention, compared to WOM, intentions to renew a relationship and especially relationship satisfaction has been given to intentions to expand. While a large body of literature is dedicated to concepts such as upselling (e.g. Kim & Kim, 1999; Bauer et al., 2003), cross-selling (e.g. Kamakura, 2008; Li et al., 2011) and increasing the purchase frequency (e.g. Raj et al., 1997; Slater, 2001) or amount sold per purchase (e.g. Smeltzer & Carr, 2002; Rust et al., 2004), primary in the area of product marketing and sales, only few research can be found in RM on the idea of expansion intentions. For example, Eggert et al. (2006) use intention to expand as a proxy for the relationship life cycle and conceptualise the relationship life cycle as a moderator variable between different benefit dimensions and relationship value. Wagner (2011) follows this “proxy approach” in their cross-industry study on buyer-supplier relationship in Germany, Switzerland and Austria. In their study on purchasing management in US manufacturing firms, Ulaga and Eggert (2006) investigated the linkages between value, satisfaction, trust, commitment, intention to expand and intention to leave with the last two being conceptualised as the dependent constructs.

Homburg et al. (2003) are one of the few providing some more information on how they understand the concept by referring to it as the “intention of a buyer [...] to expand the quantity and volume of this relationship”. Other studies do not present a clear definition of the concept so that a look at the construct items is required to better understand what the authors mean by “intention to expand”. For example, Ulaga and Eggert (2006, p. 320-321) operationalize the intention to expand as follows: (1) “Our firm expects to expand its business with the main supplier”, (2) “The main supplier will receive a larger share of our business in the future”, (3) “The main supplier will be used more over the next few years than it is now”, (4) “Our firm does not expect to increase its purchases from the main supplier in the future”. Thus the authors use four different types of statements: One rather general statement (1), one statement referring to relative expansion (2), one statement with an unclear comparison standard but more specific about the time frame (3), and one statement for an expansion in absolute numbers (4). The first three items are the same as in Eggert et al. (2006) paper, where the authors adapted a multi-item scale from Cannon and Homburg (2001).

The focus of all the studies mentioned before, however, is on expanding current relationships. No research has been found on the intention to expand certain activities beyond the current relationships. In other words, it is unclear if the outcomes of an already existing relationship influence the willingness of the relationship stakeholder to expand its activities by entering new relationships. The willingness to move beyond the current relationship might be a result of limited growth opportunities in the relationship or the desire to look for “something new” (e.g. addressing new industry sectors or topics).

While *intentions to expand* beyond the current relationship can be considered as an unexplored area in RM, related concepts can be found in general marketing and strategic management literature. For example, Ansoff (1957) refers to market development as “a strategy in which the company attempts to adapt its present product line (generally with some modification in the product characteristics) to new missions”. While marketing and business management was product-focused during the time of the publication, with services marketing emerging only in the 1970s and 1980s (Fisk et al., 1993), Ansoff’s (1957) idea can be transferred to services and

also relationships. Applying Ansoff's (1957) approach to RM, relationship stakeholders might intent to expand their activities through entering new relationships with other parties, based on previous positive relationship experiences.

With no research having addressed a relationship stakeholder's intention to expand activities beyond the current relationship, hypotheses need to be drawn based on research on intentions to expand the current relationship. Ulaga and Eggert (2006) were found to be the only ones providing empirical evidence on the linkage between value and intentions to expand. The authors conclude in their study on US manufacturing firms "that relationship value has a direct impact on the intention to expand business with the incumbent supplier". Thus, it seems justifiable to assume that relationship value also positively affects the relationship stakeholder's intent to expand the activities beyond the current relationship.

In summary, *intention to expand* is understood in this research as the willingness to enter new relationships. Based on previous research on the intention to expand current relationships, a positive relationship between relationship value and the intention to expand into new relationships is proposed.

Having detailed four relationship value outcomes and the effect of relationship value on the respective outcomes, the following section will highlight the interrelationship between these four outcomes.

2.2.5.5 Interrelationships between Relationship Value Outcomes

While relationship value is expected to have a positive effect on all four additional outcomes of a relationship detailed in this study, six interdependences between these outcomes are proposed next.

Satisfaction on intention to renew

While Bolton (1998, p. 45) refers to "considerable controversy about whether there is a link between customer satisfaction and retention", many other, often more recent, publications refer to this very specific link (e.g. Zeithaml et al., 1996; Kotler et al., 2002; Durvasula et al., 2004). For example, Hennig-Thurau et al. (2002) confirm this link in their study among a variety of service firms. While the authors named the construct "loyalty", the operationalization of the construct highlighted

primary the retention element so that the results seem appropriate for the argumentation on a relationship stakeholder's intention to renew. In another study on UK fixed line telephone users in the UK, Ranaweera and Prabhu (2003) confirmed that satisfaction has a positive influence on customer retention with the influence being larger than the influence of trust on retention.

Based on the results discussed above, a positive relationship between satisfaction and intention to renew is proposed for this study.

Satisfaction on WOM

Past research has shown a strong link between the satisfaction or dissatisfaction with a product, service, brand or firm and the given type of WOM, namely positive or negative WOM (Blodgett et al., 1993). Very satisfied and unsatisfied people are perceived as highly motivated to perform the respective type of WOM (Kilian et al., 2008). The link between satisfaction and WOM is also highlighted by Buttle (1998, p. 246) who states that "negative WOM can be conceptualized as an outcome of an unsatisfactory imbalance between expectations and perceptions".

Hence, satisfaction can be expected to positively influence the likelihood of WOM in the context of this study.

Intention to renew on WOM

While Davidow (2003) conceptualises WOM as an antecedent of repurchase intentions and found evidence for this link, a larger body of literature refers to a relationship in the opposite direction, meaning that the intention to renew (or repurchase) positively influences WOM. For example, Olaru et al. (2008) found that those customers of large multi-disciplinary agencies in the Australian R&D industry that intended to renew their contracts were also more likely to recommend the services to others. Petrick's (2004) results confirm this link. In his study he surveyed passengers of two 7-day Caribbean voyages and found that repurchase, or in this case revisit intentions, positively affects WOM.

In line with the pre-dominant view, it seems reasonable for this research to propose that repurchase / renewal intentions influences WOM.

Having detailed the interrelationship between satisfaction, intention to renew and WOM, the following paragraphs detail the linkages of the three constructs with the rather unexplored concept intention to expand.

Satisfaction on intention to expand

As one of the few studies on the intention to expand concept, Ulaga and Eggert's (2006) work on US purchasing professionals will serve as the main discussion basis on the intention to expand construct to be used in this research. Here it has to be highlighted again that the authors focused on the intention to expand existing relationships, whereas this research focuses on the intention to expand activities beyond the existing relationships. Ulaga and Eggert (2006) found that satisfaction in supplier-buyer relationship positively impacts the intention to expand. While expanding a relationship with an existing contact (as researched by Ulaga and Eggert, 2006) might be more likely due to the satisfactory experiences gained, one might argue that these experiences could be transferred to future activities beyond the current relationship if the activities stay the same (or similar) and form the reference point, rather than the partner or the relationship. Especially in markets which are not saturated, people might want to expand their activities beyond the current relationship. The justification of this assumption is that people that have been satisfied with the value generated in the past (with certain partners), now realise the opportunities which exist in forming new relationships in order to enter or get a larger share of the unsaturated market.

Based on the above argumentation, a positive relationship between the satisfaction in a relationship and the willingness to expand the same or similar activities beyond this relationship could be expected.

Intention to renew on Intention to expand

Due to the limited research in this area, Ulaga and Eggert's (2006) paper also serves as the discussion basis for the linkage between the intention to renew an existing relationship and the intention to expand beyond this relationship. In their study, the authors conceptualised commitment as an outcomes of relationship value, trust and satisfaction and found that commitment positively affects the intention to expand.

As highlighted earlier by the example of Daniel et al. (2002) who use the intention to renew a membership as the measure of commitment, the concept of renewal intentions is closely related to the concept of commitment, if the latter one is conceptualised as an outcome of a relationship. Acknowledging the close relationship between relationship commitment and the intention to renew a relationship, the question arises if the commitment-expansion link from Ulaga and Eggert (2006), which is focused on the expansion within an existing relationship, could be transferred to an intention to renew-expansion link in this research, whereby the expansion is focused on relationships going beyond the current one. The reasoning for this might be similar to the argumentation in the last paragraph on the satisfaction-expansion link. If a relationship stakeholder is willing to renew a relationship with the current partner, the stakeholder might also be willing to expand the activities if opportunities exist to scale the positive experiences made (e.g. unsaturated markets).

In line with the above argumentation, a positive effect of the intention to renew on the intention to expand relationships could be expected.

Intention to expand on WOM

Based on the previous reasoning, it might also be argued that not only the intention to renew an existing relationship influences WOM (Petrick's, 2004; Olaru et al., 2008), but that the intention to expand the activities beyond the current relationship also fosters WOM as the relationship stakeholder aims to scale positive experiences and could thus be considered a "multiplier" in the sense that the stakeholder does not only multiply its own activities but also recommend these type of activities to others. Thus, it can be hypothesized that the intention to expand positively influences WOM.

To summarise, this section has discussed the interrelationship between the outcomes of relationship value, namely satisfaction, intention to renew, intention to expand, and WOM. As a results of the discussion, positive impact of

- *satisfaction on intention to renew*
- *satisfaction on WOM,*
- *intention to renew on WOM,*
- *satisfaction on intention to expand,*

- *intention to renew on intention to expand*, and
- *intention to expand on WOM*

are proposed.

2.2.6 Antecedents of Relationship Value

In order to better understand how value is created in UIRs (the goal of this research), the following sections will detail two of the main relationship characteristics discussed in RM, namely trust and commitment. While the majority of studies conceptualise trust and/or commitment as outcomes of relationship value (e.g. Morgan and Hunt, 1994; Ulaga & Eggert 2006; Berry & Terry, 2008; Gil-Saura et al., 2009; Moliner, 2009), this research is interested in the constructs' ability to drive the value creation process and thus follows prior research (e.g. Walter et al., 2000; Ryssel et al., 2004) which looks at trust and commitment as antecedents of relationships.

2.2.6.1 Trust

Acknowledged as “probably the most researched component of successful relationships” (Heffernan et al., 2008, p. 184), trust can be considered a central underpinning of (the development of) RM (Oly Ndubisi & Kok Wah, 2005). Dietz and den Hartog (2005) provide an overview of several trust definitions and derived three different forms of trust from the analysis of these definitions. According to the authors, trust as a belief, trust as a decision, and trust as an action can be distinguished. As this research intends to contribute to the understanding of value creation in UIRs and is interested in how trust influences this action, the following discussion will focus only on trust as a belief and exclude the behavioural-oriented form.

Various definitions for the concept of trust as a belief can be found in literature. For example, Bakker et al. (2006, p. 598) define it as “a set of beliefs about the other party (trustee), which lead one (trustor) to assume that the trustee's actions will have positive consequences for the trustor's self”. The definition is very close to the one stated by Mayer et al. (1995, p. 712) who refer to trust as “the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other party will perform a particular action important to the trustor irrespective of the ability to monitor or control that other party.” Mayer et al. (1995) specifically highlight the vulnerability of the trustor as the actions of the trustee can

often not be monitored or controlled. This is in line with Josang & Presti (2004, p. 135) who refer to “a feeling of relative security, even though negative consequences are possible”. If trust, however, has been developed, it can act as the “social glue” that holds organisations together (Fukuyama, 1995) and supports relationships to become successful.

Several dimensions of the trust as belief concept have been defined in literature, however, as Dietz and den Hartog (2005) highlight, many of these can be considered as similar but labelled differently. Mayer et al. (1995) refer to ability, benevolence, and integrity as the three dimensions of trust. Ability trust focuses on the skills, competences and the general characteristics of a trustee that enable certain actions whereas benevolence trust looks at the intentions and motives of the trustee to do good to the trustor or to be concerned about the trustor, apart from the self-centred motives of the trustee. Lastly, integrity trust refers to belief that the trustee acts along certain principles that are acceptable for the trustor, such as keeping one’s word, and honesty. These three dimensions are generally accepted whereby some use different names, e.g. capability instead of ability (e.g. Bakker et al., 2006), some combine dimensions, e.g. integrity and ability combined into credibility (e.g. Ganesan, 1994) or add further dimensions, such as trustworthiness as a separate dimension (Doney & Cannon, 1997) or fairness and openness (Schurr & Ozanne, 1985).

A limited number of studies have investigated the link between trust and relationship value. Walter et al. (2000), for example, surveyed purchasing professional and confirmed the positive effect of trust on relationship value with trust including benevolence as well as honesty trust. Integrating the same two trust types, Ryssel et al. (2004) confirmed the same positive relationship in their study on the information technology (IT) sector. The authors separated direct value function (volume and profit) from indirect value functions (innovation, market, access, scout) and found a positive impact of trust on both, with a strong one being on indirect value functions.

Based on the results of previous studies, a positive trust-relationship value link can be expected for this study.

2.2.6.2 Commitment

Commitment is known as one of the oldest (Becker, 1960) and most extensively studied (Reichers, 1985) concepts in organisational (behaviour) theory. More recently, the concept also became a central element in RM research, highlighted in many, especially quantitative, studies (e.g. Brown et al., 1996; Geyskens et al., 1996; Hennig-Thurau et al., 2002). This centrality is put forward by Oly Ndubisi and Kok Wah (2005, p. 545) by stating that “commitment similar to trust is one of the important variables for understanding the strength of a marketing relationship, and it is a useful construct for measuring the likelihood of customer loyalty as well as for predicting future purchase frequency”.

Research on commitment requires a clear definition of what it meant by it as many different approaches exist. For example, Morrow (1983) already highlights in the early 1980s that more than 25 concepts or measures exist which are related to commitment. O'Reilly and Chatman (1986) suggest to define commitment as the foundation of one's psychological attachment to an organisation, with the foundation of attachment being different to the antecedents and consequences of commitment.

To further discuss and define the concept of commitment, a closer look at its different dimensions seems reasonable. Acknowledging the side-bets approach of Becker (1960), Porter's (1974) middle affective-dependence approach, both focusing on just one dimension, as well as O'Reilly and Chatman's (1986) multi-dimensional work, this research will focus on Meyer and Allen's (1984, 1990, 1997) theory which became the dominant theory on commitment. The authors' works refer to three dimensions of commitment, namely affective commitment, continuance commitment, and normative commitment. Criticising research following Becker's (1960) side-bets approach with respect to its measurement, Meyer and Allen (1984) initially developed two scales, one on affective commitment and one on continuance commitment. Affective commitment refers to “the relative strength of an individual's identification with and involvement in a particular organization” (Mowday et al. 1982, p. 27) and includes feelings of belonging and attachment (Hartmann & Bambacas, 2000). Meyer & Allen (1997) highlight that the “entity” people are attached to might be an organisation, project, supervisor or fellow worker. In this research on UIR, the attachment is directed towards the partner in the relationship.

The second commitment dimension, continuance commitment can be understood as "a tendency to 'engage in consistent lines of activity' (Becker, 1960, p. 33) based on the individual's recognition of the 'costs' (or lost side bets) associated with discontinuing the activity" (Allen & Meyer, 1990, p. 3). Also called instrumental commitment (e.g. O'Reilly & Chatman, 1986; Chatman, 1989) or calculative commitment (e.g. Randall & O'driscoll, 1997; Johnson, 2007), this commitment type is characterised by a rational calculation of the benefits and sacrifices related with the continuance or ending of a relationship (Geyskens et al., 1996; Wasti, 2002).

The third and last dimension was added a few years after the publication of Meyer and Allen's (1984) original paper and is referred to as normative commitment. Normative commitment focuses on the feeling of obligation to remain in the organisation, project, relationship or any other entity. In other words, people with a high normative commitment feel that they ought to remain (Allen & Meyer, 1996).

Of the three types of commitment introduced, affective and calculative (continuance) commitment are the most used ones and "seem to be the most relevant for interorganizational relationships", as highlighted by Geyskens et al. (1996, p. 304), referring to the work of Mathieu and Zajac (1990).

Some empirical research results on the link between commitment and relationship value can be found in literature. In their study in the IT sector, Ryssel et al. (2004) operationalized commitment as a combination of loyalty, the willingness to make short-term sacrifices, long-term orientation as well as the intention to invest in the relationship. The results confirmed that commitment has a positive impact on both direct and indirect value functions (see 2.2.6.1). Compared to the impact of trust on these value functions where the impact was stronger on the indirect functions, commitment influenced the direct value functions much stronger than the indirect ones.

Having introduced trust and commitment and highlighted their linkage to relationship value, the next section will focus on the interrelationship between the two constructs.

2.2.6.3 Interrelationships between Trust and Commitment

The interrelationship between trust and commitment is a well-researched area in RM with some studies conceptualising trust as an antecedent of commitment (Morgan and Hunt, 1994; De Ruyter et al., 2001) while others conceptualised it the other way around (Aulakh et al., 1996; Rampersad et al., 2010). Lai et al. (2008) refer to the first conceptualisation as the dominant one.

When taking a closer look at the relationship between trust and commitment, it is necessary to consider the types of trust and commitment (as highlighted in the previous sections). Geyskens et al. (1996), for example, combined trust in honesty and trust in benevolence into one construct and investigated its effect on two separate constructs for affective and calculative commitment. The researchers confirmed that trust negatively impacts calculative commitment and positively impacts affective commitment. De Ruyter et al.'s (2001) results from the copier machine sector in the Netherlands reveal the same impacts with the results from Gounaris (2005) in the consulting sector in Greece providing further evidence. The positive effect of trust on affective commitment has also been confirmed in Morgan and Hunt's (1994) well cited paper on the commitment-trust theory of RM, as well as by Anderson and Weitz (1989). Separating trust in honesty and benevolence trust and using critical incident method (Flanagan, 1954), Aurier and Siadou-Martin (2007) found that both types of trust positively influenced affective commitment. Wetzels et al. (1998) survey all four constructs, namely trust in honesty, trust in benevolence, affective commitment as well as calculative commitment. The results confirmed the positive impact of benevolence trust and honesty trust on affective commitment. While honesty trust was found to negatively influence calculative commitment, the hypothesis that benevolence trust also negatively influences calculative commitment had to be rejected.

To summarise, trust is primarily conceptualised as an antecedent of commitment whereby calculative commitment is expected to be negatively, affective commitment to be positively influenced by both trust types.

2.2.7 Section summary

Since its introduction, RM developed into an extensive research stream and is now considered a central concept in marketing theory and practice. This section (2.2)

introduced RM by outlining its evolution and theoretical perspectives before a definition for this research was developed based on a discussion of different approaches existing in literature. Following this, relationship value has been highlighted as a central element in RM research, and has been defined as it will also take a central role in this research. Subsequently, four outcomes of relationship value have been presented, namely satisfaction, WOM, intention to renew, and intention to expand. Each outcome has been introduced and past research has been discussed in order to develop hypotheses on how the outcome is linked to the concept of relationship value. In addition to this, the interrelationships between the outcomes have been outlined. The last section elaborated on antecedents of relationship. Trust and commitment have been identified as central relationship characteristics influencing the creation of value. Similar to the previous section, each antecedent has been introduced separately, including a description of its linkage to relationship value, before the interrelationship between trust and commitment was presented.

To summarise, this section has presented relationship value as the central element of this research and introduced two antecedents and four outcomes of relationship value. The following figure shows this conceptualisation graphically.

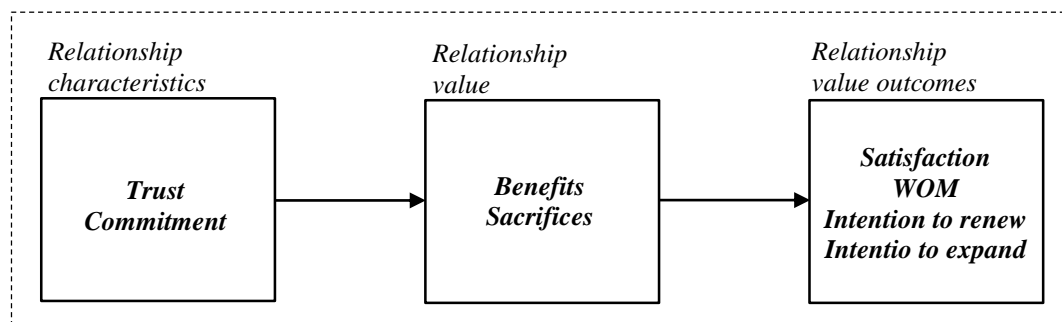


Figure 3: Conceptual RM Framework

The next section is dedicated to ST. Directing the discussion from the relationship perspective more towards individual stakeholders, the section will split up the link between relationship value and its antecedents in order to integrate individual stakeholder value in between. This specific linkage of the two literature streams aims to provide a new perspective of how value is created.

2.3 Stakeholder Theory (ST)

Since its “birth” in 1984 by Freeman (1984), ST has raised considerable interest among theorists and practitioners (Parmar et al., 2010). While Lepineux (2005) considers ST a weak, but perfectible theory with other scholars also pointing to many shortcomings to be addressed (see Laplume et al., 2008 for an overview), most people agree that it provides a valuable theory or perspective on how firms can increase their business performance and/or address their social or moral responsibility. Referring to the initial idea of ST, Freeman (2000) highlights that he intended “re-describing the practice of value creation and trade” (p. 173), a goal which is today more important than ever before as value is primarily created through a complex set of relationships (e.g. partnerships, customer co-creation).

The following sections will introduce ST and highlight linkages to RM with the overall goal being to integrate the two literature streams in order to develop a conceptual model on value creation from both a relationship as well as a stakeholder perspective. The next sections will outline the emergence of ST as well as theoretical perspectives. Following this, a chapter is dedicated to narrowing down the broad stakeholder concept and provide a working definition for this thesis. Lastly, stakeholder classifications approaches and the concept of stakeholder value are introduced with further sections being focused on the linkage of ST and RM as well as ST and value creation.

2.3.1 Evolution of ST

The term “stakeholder” was first used in an internal publication (memorandum) of the Stanford Research Institute in 1963 (Freeman, 1984). However, it took more than two decades for the stakeholder concept, as we know it today, to come to light. More precisely, Parmar et al. (2010) refer to the late 1970s and the early 1980s when academics and practitioners started to develop management theories for times characterised by uncertainty and change. The authors state that the assumption that organisations were embedded in more or less stable environments were being questioned with further interest areas around ethical and moral aspects in management and business driving the need for new theories. According to Pesqueux and Damak-Ayadi (2005), who refers to Lepineux (2003), this movement was supported by

different stakeholders calling attention to (social) abuses in “affairs” (e.g. Eastman Kodak and General Motors) in the business sector.

Despite the earlier usage of the term, it is widely accepted that ST was born with Freeman (1984) publishing his book “Strategic Management: A Stakeholder Approach” in the above described environment. He specifically referred to existing theories being unable to address “the quantity and kinds of change which are occurring in the business environment” (Freeman, 1984, p. 5). Using shifts in competitions, the resource market, government, and communication technology, amongst other, as examples, Freeman (1984) highlighted that internal as well as external stakeholders of a firm were involved in these movements. As a consequence, he argued, managers should incorporate all those in their business thinking and acting which can either affect or be affected by the activities of the organisation. At its very core, Freeman (1984) aimed to provide a practical approach, or way of thinking, that would turn managers’ attention towards recognising and addressing a wide range of stakeholders in order to achieve superior (business) performance.

Some years after the publication of the founding work of ST, Evan and Freeman (1988) as well as Freeman and Gilbert (1988) integrated ethical/moral aspects and stakeholder management, today known as normative ST (Donaldson & Preston, 1995). Connecting ST with both management as well as morality resulted in considerable criticism as the theory would see the stakeholders (or addressing their interests) as means to ends (e.g. increased efficiency and profitability), but also as ends in themselves (Goodpaster, 1991). Freeman (1994; 2000) responded to this criticism by stating that the mix of business and morality is the actual value ST provides, and that the true value can only be extracted when also seeing ST as managerial and practicing it.

In the past two decades, many studies have been carried out in order to address the limited empirical validity of some key propositions (Jones, 1995) and to refine the theory. In addition, supporters had to defend ST against criticism and misconceptions, such as beliefs that ST is an excuse for managerial opportunism, it is primary about financial outputs or that all stakeholders should be treated in the same way (Parmar et al., 2010).

Laplume et al. (2008) summarise the development of ST in three phases. Based on their content analysis of 179 articles, they identified the (1) incubation period, (2) the period of incremental growth, and (3) the maturity period. First, the incubation period from 1984 to 1991 was primarily characterised by publications in conference proceedings or practitioner journals, dissertations and book chapters (Wood, 1991). Second, in the period of incremental growth, lasting from 1991 to 1998, the theory development was pushed forward by many journal articles and special issues as well as dedicated academic conferences. The third and last period, from around 1999 to the present, is called by the Laplume et al. (2008) the maturity period. Since 1999, considerable attention has been given to the theory with a special focus on social issues (e.g. corporate social responsibility).

The evolution of ST has benefitted highly from the active involvement of its founding scholars over the last decades. Most notably, the originator of the term, R. Edward Freeman, was very active in moving the stakeholder idea forward with far more than 100 items referring to ST on his publication list. The active discussions were fostered by disagreements over core values (Margolis & Walsh, 2003) and the emotions which are evoked in the discussions (e.g. Jensen, 2002). It is this emotional component and the (resulting) continuous interaction among scholars which kept the exchange dynamic and resulted in what science and scientific publications are supposed to be – a discussion. As ST can be considered a rather broad approach (Trevino & Weaver, 1999; Phillips, et al., 2003; Kline, 2006), the active discussion was crucial to exchange views on misapplications and boundaries of ST (Parmar et al., 2010). In line with this, Parmar et al. (2010) name ST “a living ‘WIKI’ constantly evolving” (p. 45) and highlight that authors believe in fostering diverse ideas whereby some “will undoubtedly lead to dead ends, but many will bear fruit” (p. 45).

Today, ST is primarily concerned about stakeholder engagement and long-term value creation. As Andriof and Waddock (2002) outline, the focus has shifted from immediate profit making towards the development of long-term oriented, mutual-benefitting relationships. The authors highlight that the main area of interest has moved from managing stakeholders towards actively interacting with them, thus focusing on a relational or process-driven perspective.

2.3.2 Theoretical Perspectives on ST

In ST literature scholars refers to stakeholder approach in various form, a theory (as stated in most publications), a framework (e.g. Parmar et al., 2010), a concept (e.g. Wicks et al, 1994), a management philosophy (e.g. Donaldson & Preston, 1995), a way of thinking (Carroll & Näsi, 1997), or a tool (Parmar et al., 2010). Theoretical considerations on ST can be structured in three elements: theories or research lines which guided the development of the original idea, different parts or points of view of the theory itself, and shortcoming of the theory.

Hardly any debate exists on how ST came along. Freeman and McVea (2001), referring to the original work of Freeman (1984), highlight again that ST was primary influenced by four research lines in organisational management, namely (1) strategic organisational planning, (2) systems theory, (3) corporate social responsibility (CSR), and (4) organisational theory. Strategic organisational planning refers to the integration of all stakeholder interests as opposed to maximising the value for one (group) at the expense of others. Organisational theory and systems theory draw attention on the diverse set of relationships an organisation is involved in and that it is required in this open system to pay attention to all stakeholders, not only those crucial for an organisation's own survival. Lastly, CSR is concerned with the social integration of an organisation and the importance of "building up strong and trustworthy relationships and maintaining a good reputation with all groups external to the organization for its ongoing success" (Wagner Mainardes, 2011, p. 231). This specific view on CSR, as stated by Wagner Mainardes (2011), highlights the management view on CSR, rather than the social one.

With respect to the different parts or points of view of ST, we can refer to the widely accepted classification of Donaldson & Preston (1995). The authors distinguish (1) descriptive, (2) instrumental and (3) normative ST. First, the descriptive perspective was born out of the need to describe and explain what organisations respectively their managers actually do. This primary exploratory research (Wagner Mainardes, 2011) deals with questions on characteristics and behaviour, such as how organisations are managed (e.g. Clarkson, 1991) or the relevance attributes to specific stakeholders (e.g. Jawahar & McLaughlin, 2001). Instrumental ST, on the contrary, is dedicated to how the stakeholder approach can be used in strategic de-

cision making with the ultimate goal being to reach performance objectives (Donaldson and Preston, 1995). Initially put forward by Jones (1995) and further developed by Donaldson and Preston (1995) in the same year, researcher primary apply statistical methods in order to explore the relationship between certain behaviour or approaches taken and the performance of an organisation (Wagner Mainardes, 2011). Lastly, the normative perspective focuses on moral aspects of management activities (Donaldson & Preston, 1995). In other words, management actions and their results should not just be economically-oriented, but also take into account the social and moral dimension.

Much attention has been given to the instrumental and normative perspective, especially on the question whether or not they fit together. While some researchers consider ST as a primary moral, normative theory (e.g. Goodpaster, 1991; Donaldson and Preston, 1995), others highlight that it is key to consider both, the moral as well as the business perspective. For example, Freeman (1999) argues that it is not possible to classify decisions as either solely moral or business-oriented. In line with this Jones and Wicks (1999) propose that ST can be the bridge between the normative view and the instrumental view, with the ultimate goal being to generate both economic as well as social value.

While ST has received considerable attention among theorists and many refer to its value, many shortcomings have to be acknowledged. Due to the wide variety of shortcoming, the key problems are not discussed individually, but summarised below by referring to the analysis results from Laplume et al.'s (2008) review on ST.

| Problem | References |
|---|---|
| Stakeholder theory exacerbates agency problems | Heath & Norman, 2004; Jensen, 2002; Sundaram & Inkpen, 2004 |
| Stakeholder theory is not well grounded and fails as a normative theory | Child & Marcoux, 1999; Cragg, 2002; Hasnas, 1998; Humber, 2002; Orts & Strudler, 2002 |
| It needs a constraint that requires executives to respect the professional obligations of employees | Carson, 2003 |
| It is undertheorized or underresearched | Stoney & Winstanley, 2001; Sundaram & Inkpen, 2004 |
| Its domain may be too broad | Kline, 2006; Phillips, et al., 2003; Trevino & Weaver, 1999 |
| It does not recognize the effects of incentives | Elms et al., 2002 |

| | |
|---|---|
| It is difficult to implement | Gioia, 1999; Kaler, 2006; Kochan & Rubenstein, 2000 |
| Normative and instrumental stakeholder theory diverge | Donaldson, 1999; Donaldson & Preston, 1995; Gioia, 1999; Margolis & Walsh, 2003 |
| It does not apply to small or medium enterprises | Perrini, 2006 |
| It is based on false assumptions | Balmer et al., 2007; Buchholz & Rosenthal, 2005; Heugens & van Oosterhout, 2002 |

Figure 4: Theoretical Problems of ST (Laplume et al., 2008, p. 1179)

As the above table highlights, theorists refer to key problems in the fundamental basis of ST. For example, ST is considered to be based on false assumptions, the normative view is not well grounded, and ST in general is undertheorized or underresearched. Another set of problems include the broadness of the concept, the difficulty to implement ST, as well as the limitation that it does not apply to small and medium-sized enterprises – all problems which (might) relate to the practicability of ST.

Having detailed theoretical perspectives on ST, the following sections will characterise ST and provide a definition of it for this thesis.

2.3.3 Characterisation and Definition of ST

The term “stakeholder” is widely used in business, government, academia, and media (Wagner Mainardes, 2011), yet a universal definition is still not found (Merriam-Webster, 2005). As Wagner Mainardes (2011) highlights, a total of 66 different concepts have been found in the works of Bryson (2004), Buchholz and Rosenthal (2005), Pesqueux and Damak-Ayadi (2005), Friedman and Miles (2006) and Beach (2008) only. As a result, ST “can mean almost anything the author [and thus also the reader] desires” (Stoney & Winstanley, 2001, p. 605). Thus it is crucial for researchers to provide a definition of the term stakeholder and what they understand as ST in order to contribute to the comprehensibility of their work.

While lots of definitions and (theoretical) views exist, nearly all are based on the same idea: organisations need to take into account the needs, interests and influences of those individuals or groups which are either affected or may affect the organisation’s activities (e.g. Freeman, 1984; Frederick et al., 1992). ST thus goes beyond the sole consideration of stockholders / shareholders (e.g. Radin, 1999) and also considers an organisation as integral part of society (Lepineux, 2005). In line

with this, Clarkson (1995) summarises the core idea of ST in three main factors: the organisation itself, other actors (or stakeholders), and the relationships between the organisation and its actor/stakeholder. Further specifying these three factors, Jones and Wicks (1999, p. 207) highlight the key premises of ST as follows:

- “the corporation has relationships with many constituent groups (“stakeholders”) that affect and are affected by its decisions (Freeman, 1984);
- the theory is concerned with the nature of these relationships in terms of both processes and outcomes for the firm and its stakeholders;
- the interests of all (legitimate) stakeholders have intrinsic value, and no set of interests is assumed to dominate the others (Clarkson, 1995; Donaldson & Preston, 1995); and
- the theory focuses on managerial decision making (Donaldson & Preston, 1995)”

Ultimately, ST is about how different stakeholders “interact to jointly create and trade value” (Parmar et al., 2010, p. 5). Organisations in today’s business environment need to establish and manage relationships with their stakeholders in a way that the value created and distributed to them is sufficient to continue to be part of that organisation’s (value creating) eco-system (Clarkson, 1995). These stakeholders include, but are not limited to customer, suppliers, employees, governments, financiers (e.g. stock holders), local communities and managers (Berman et al, 1999).

As ST is also understood as a “managerial concept” (Freeman et al., 2004), different scholars have dedicated their work towards how to manage stakeholder relationships. For example, following Wagner Mainardes’ (2011) work stakeholder management can be summarised in three main levels, namely the identification of stakeholders, the collection and interpretation of stakeholder needs, interests and influences, as well as the development of relationships around the main goal of reaching specific (economic and social) objectives. Similarly to this, Parmar et al. (2010) define ST as a “tool” (p. 409) which should help to address three core problems or areas of activities. First, it is about understanding value creation and trade, primary referring to the economic value, thus instrumental ST. Second, it aims to link ethics/moral and capitalism (normative ST). Lastly, ST aims to support managers in a way that the first two problems/areas can be addressed. Key management

issues of ST can also be derived from Laplume et al. (2008) who identified five main themes in ST research. Next to definition and salience as well as theory debates, the authors refers to three themes related to stakeholder management, namely stakeholder actions and responses, firm actions and responses, as well as firm performance. Thus, this structure refers to the two sides of stakeholder management and their interdependence (responses), as well as increased performance (may it be economic, social or other) as the desired outcome.

In his initial work, Freeman (1984) refers to the balancing of stakeholder interests over time as a key concern. While ST is sometimes criticised for not providing any help in prioritizing competing interests (e.g. Kaler, 2006), Jensen refers to the “maximisation of the long-run value of the firm” (p. 235) as the reference point for trade-offs of stakeholder interests. Integrating the stakeholders themselves or their representatives in the decision making or mediation process is another approach put forward (e.g. Burton & Dunn, 1996; Lampe, 2001). Importantly, Reynolds et al. (2006) highlight that the aim to balance the interest of stakeholder might could sometimes not be fulfilled due to unequal stakeholder saliency or the fact that resources cannot be freely divided. Thus, the balance of interest should be considered as a whole (across decisions) rather than on an individual case (within decisions), resulting in a higher instrumental value and a more ethical approach and result (Reynolds et al., 2006).

With regards to the question whom to pay attention to, the model of Mitchell et al. (1997) can be regarded as the one primary used in literature. The authors developed a dynamic three-factor model, called “stakeholder salience”, which focused on power, legitimacy, and urgency. Whereas power refers to the ability of the stakeholder to make an influence, legitimacy highlights the appropriateness of the relationship in the social system. Lastly, urgency refers to how quickly an organisation needs to respond to a stakeholder request.

Based on the above discussion on the focus and characteristics of ST, the following definition has been derived and will be used within this research:

“ST refers to a set of principles associated with the relationships between an entity and those either affecting or being affected by its actions. Characterised by power, legitimacy and urgency, relationships and stakeholder interests are strategically developed and managed in order to jointly create and trade economic and social value”

Having characterised and defined ST, the subsequent section will highlight different stakeholder classification approaches in order to provide a clearer understanding of who is, or could be, meant when referred to the term “stakeholder”.

2.3.4 Stakeholders Classification Approaches

Stakeholders are generally referred to as all those individuals, groups and organisations which either affect or are affected by an organisation’s actions (Freeman, 1984). Freeman’s very broad definition has been criticized as it could refer to nearly anybody (e.g. Donaldson & Preston, 1995). As a result of this, and in order to contribute to the identification process of potential stakeholders, different stakeholder classification approaches have been developed.

Among the most used stakeholder classifications are the dichotomous ones. For example, internal and external stakeholders are often distinguished based on whether or not the stakeholder “works” inside the organisation’s boundaries (e.g. shareholders, managers and employees) or operates outside these (e.g. customers, competitors) (Savage et al., 1997; Woolridge et al, 2007). In his seminal work, Freeman (1984), however, separates the two classes differently, with internal stakeholders including owners, customers, employees, and suppliers, and external stakeholders including governments, competitors, special interest groups, media and others. Freeman’s (1984) view is less concerned with an organisation’s boundaries, but more with how essential an individual, group or organisation is for an organisation’s operation. Another classification taking this perspective separates stakeholders in primary and secondary. Clarkson (1995) refers to primary stakeholders as those “without whose continuing participation the corporation cannot survive as a going concern” (p. 106). Accordingly, secondary stakeholders are those not playing such a vital role with respect to an organisation’s survival. Yet another dichotomous clas-

sification refers to direct and indirect stakeholders with the former interacting directly with the respective system or entity (in this research a relationship) whereby the latter refer to those who are affected by the system, entity, or relationship (Friedman et al., 2002). Lastly, a distinction is drawn between normative and derivative stakeholders. Normative stakeholders refer to all those to whom an organisation has a moral obligation, such as customers, employees, shareholders or communities (Phillips, 2003). In contrary, derivative stakeholders can be considered as those who can potentially harm or benefit an organisation, but to which this organisation does not have a moral obligation, such as competitors or media (Phillips, 2003).

Other stakeholder classifications are primary concerned with the roles of involvement. For example, Callan et al. (1999) separate in their case study on an internal design review process in a major systems company (1) controllers, (2) executors, as well as (3) constraining advisors, and (4) discretionary advisors. While controllers are directly responsible for the process activity and delegate work, if necessary, executors implement this work. Compared to this, the constraining advisor provides suggestions which cannot be ignored while the discretionary advisor's help can be used or not. In summary, Callan et al. (1999) primary separate responsibility/management from execution and advisory roles. Compared to this, Turner (2006) provides a further detailed differentiation of stakeholder roles. The total of seven roles are described by Turner (2006, p. 189) as follows:

- “The owner provides the resources to buy the asset and derives the benefits from its operation
- The users operate the asset on the owner's behalf
- The sponsor will channel the resources to the project on the owner's behalf
- The resources are assigned to the project and will do the work to deliver the asset
- The broker works with the owner and the sponsor to define the required outcome (benefit) of the project, and the output (change) which will achieve that

- The steward works with the broker to identify the means of obtaining the output, the work and the resources required
- The manager manages the temporary organisation to ensure that the right work is done to deliver the defined output, and to monitor and control progress”

As recognised by Achterkamp & Vos (2008), both Turner (2006) as well as Callan et al. (1999) primary focus on roles directly involved in the realisation of an outcome with less attention given to those outside of the activity (e.g. customers). This external perspective, however, is well highlighted in the work of Greenley and Foxall, (1996) who refer to consumers, competitors, and unions as stakeholders, as well as in the work of Clarke and Clegg (1998) who include customers, shareholders, and suppliers (whereby it is questionable if shareholders and suppliers should be considered external to an activity as they provide resources and thus could also be included among the internal stakeholders, depending on how narrow the term “involvement” is understood).

Yet another (external) stakeholder class to be included is society, or in other words, the general public. For example, in line with the normative stakeholder class (Phillips, 2003), Henriques & Sadosky (1999) refer to communities as stakeholders. Lepineux (2005), however, concludes his review on current literature by stating “that the place of civil society in stakeholder theory is unclear, ill defined [and] the status given to society is imprecise, indeed non-existent” (p. 100). Thus, the author puts forward a distinction between business stakeholders and societal stakeholders and specifically refers to the need to distinguish between national and global societies.

The following table summarises the above discussed as well as additional stakeholder classifications found in literature:

| Stakeholder classes | Example references |
|---|---------------------------------------|
| Client, decision maker, designer, passively involved | Vos & Achterkamp, 2006 |
| Controller, executor, constraining advisor, discretionary advisor | Callan et al., 2006 |
| Owner, users, sponsor, resources, broker, steward, manager | Turner, 2006 |
| Internal and external stakeholders | Freeman, 1984; Savage et al., 1997 |
| Direct and indirect stakeholders | Friedman et al., 2002 |
| Contractor and non-contractor | Lepineux, 2005 |
| Business and societal stakeholders | Lepineux (2005) |
| Voluntary relationship and involuntary relationship | Clarkson (1995) |
| Primary and secondary stakeholders | Savage et al. (1991); Clarkson (1995) |
| Consumers, competitors, employees, shareholders, and unions | Greenley and Foxall (1996) |
| Customers, employees, shareholders, and suppliers. | Clarke and Clegg (1998) |
| Organizations, communities, regulations and media | Henriques & Sadorsky (1999) |
| Cooperative and competitive stakeholders | Donaldson & Preston (1995) |
| Advocating, supporting, regular, new, and potential stakeholders (The ladder of stakeholder loyalty) | Tuominen (1995) |
| Allied, cooperative, neutral, competitive, and threatening stakeholder (the extended ladder of stakeholder loyalty) | Polonsky et al. (2002) |
| Derivative and normative stakeholders | Phillips (2003) |
| Dormant, discretionary, demanding, dominant, dangerous stakeholders, dependent, definitive, and non-stakeholders | Mitchell et al. (1997) |
| Supportive (high collaboration low threat), marginal (low collaboration low threat), mixed blessing (high collaboration high threat), and opposing stakeholders (low collaboration high threat) | Savage et al. (1991) |
| Customer markets, referral markets, influencer markets, employee markets, supplier markets, and internal markets | Christopher et al. (1991) |

Table 4: Overview of Stakeholder Classification Approaches

Having characterised and defined ST and discussed different stakeholder classification approaches, the next section will outline ST's linkage to the RM.

2.3.5 Linkage between ST and RM

Polonsky (1995) and Polonsky et al. (2002) have been among the first to highlight that the stakeholder perspectives can be considered a core or integrated part of RM or a “useful tool for marketing theory and practitioners” (Polonsky, 1995, p. 44). However, Polonsky itself as well as other scholars, primary in the 1990s and 2000s, outlined that ST and RM have not yet been fully integrated (Polonsky, 1995; Polonsky et al., 2002; Knox & Gruar, 2007). In addition, stakeholder marketing is

seen as a supportive theory (or perspective) rather than a theory-in-action, as highlighted by Payne et al. (2005). In the same line, Miller and Lewis (1991) suggest that ST has “yet to catch on in marketing” (p. 55). However, Polonsky et al. (2002, p. 109) also highlighted already in 2002 that recent work seems to indicate a change towards a higher integration.

Despite the limited integration of ST and RM in theory and practice, consensus is reached among scholars that the two are overlapping and complementary. Many scholars refer to ST being an implicit component in the modern marketing philosophy with organisations putting customer’s needs and wants at the centre of their thinking and acting (e.g. Armstrong et al., 2014). This core idea of marketing primary refers to the customer as the key stakeholder of the organisation. With the rise of RM, however, the view has been broadened. On one hand marketing has moved beyond its focus on transactions towards longer-term, mutually beneficial relationship with its customers (Berry, 1983), meaning that the “customer is king” principle is enriched by looking at the entire customer lifetime (Zinkhan, 2002). On the other hand, RM also extended the “traditional” marketing view by looking beyond the customer and integrating other stakeholders, such as partners (e.g. Morgan and Hunt, 1994; Donaldson & Preston, 1995; Murphy & Wang, 2006). As a result of these two developments, RM has been acknowledged as the stream in marketing research that has “in particular [...] stressed the importance of stakeholder relationships” (Payne et al., 2005, p. 857) and that “offers a reformist agenda for stakeholder management” (Knox & Gruar, 2007, p. 115).

The linkage between ST and RM can also be recognised by taking a closer look at the definitions of ST and RM developed in this research (see section 2.2.3.2 and 2.3.3). First, both definitions refer to different stakeholders and their interaction with an organisation. Second, both highlight value creation as the ultimate goal of the respective approach. Thus, the definition can be considered as quite congruent in terms of the process as well as the outcome perspective. Bruhn (2003) refers to four dimensions of RM, which can all be found in ST as well. Next to stakeholder orientation and value orientation which can be easily recognised in the definitions developed for this research, he refers to decision orientation and time-horizon orientation. The decision orientation refers to the fact that RM is a management ap-

proach involving various phases, including analysis, planning, realisation and controlling (Bruhn, 2003). This managerial perspective and approach can also be found in ST and specifically in the definition used in this study, highlighted by the wording “strategically developed and managed”. The time horizon refers to the fact that a time horizon has been added in RM (Zinkhan, 2002), as opposed to the transaction-based marketing which focused on single exchanges. This research’s definitions of ST and RM refer to this time orientation by highlighting that the relationships are developed, managed, maintained and/or enhanced, all verbs referring to a longer-term interaction.

Compared to the many similarities and overlapping found in literature, Tzokas & Saren (2004) aim to outline some differences between ST and RM. According to the authors, ST views stakeholders and their interests as “points of the firm’s responsibility” (p. 127) as these individuals or groups act in the same environment and thus have a stake, actively or passively. In contrast to this, stakeholders in RM, respectively in the six-market stakeholder model the authors refers to (see Christopher et al., 1991), are seen as “potential active partners” (p. 127) which may contribute to reaching the organisation’s objectives, if they receive value in return. Thus, the authors conclude that stakeholders play an active role in the performance of marketing efforts. This dichotomy, however, could be challenged by taking a closer look at the different theoretical perspectives and stakeholders groups. For example, the view that an organisation is responsible for its stakeholders might primarily refer to the normative (moral) view on ST, whereby the instrumental view is concerned with stakeholder interaction to reach performance objectives, thus presenting a rather self-oriented view (Donaldson and Preston, 1995). In addition, the sole consideration of stakeholders as active partners who might contribute to marketing efforts might be questionable with regards to the position of customers. Customers who build up a long-term relationship with an organisation might not necessarily support the marketing efforts of an organisation.

In addition to this responsibility vs. partner differentiation, Tzokas & Saren (2004) indicate that RM does not consider the interrelationships between stakeholders, as opposed to ST which does (according to the authors). ST, however, refers to the jointness of interest principle since the very beginning (Freeman, 1984). This principle refers to the aim to align interests rather than focusing on conflict and

value trade. In a later publication, Freeman (2010) highlights the interdependences between stakeholders by stating that the stakeholders are “bound together by the jointness of their interests” (p. 7) and that “no stakeholder stands alone in the process of value creation. The stakes of each stakeholder group are multi-faceted, and inherently connected to each other.” (p. 8).

More recently, the linkages between ST and RM have been developed into a concept entitled stakeholder relationship marketing. In line with the above discussions, Murphy et al. (2005) state that “Stakeholder relationship marketing involves creating, maintaining and achieving strong relationships with customers, employee, supplier, community, shareholder and stakeholder of a business with the goal of delivering long term economic, social and environmental value to all stakeholders in order to enhance sustainable business financial performance” (p. 1050–1051). Since its introduction, some papers have been published on the stakeholder relationship marketing concept (e.g. Murphy et al., 2005; Murphy & Wang, 2006; Singh & Agarwal, 2013), however, the attention it received in the wider ST and RM literature can be considered as limited. Thus, it is questionable whether or not stakeholder RM will be developed into a substantial concept, or if the literature streams of ST and RM will remain rather separate and are getting integrated when necessary.

To summarise, this section highlighted the linkages between ST and RM which can be found in literature and also critically reviewed some differences pinpointed. Already before the introduction of ST in 1984, Kotler (1972) stated that marketing should not only address consumers, but that “[a] management group has to market to the organization’s supporters, suppliers, employees, government, the general public, agents, and other key publics” (p. 48). This statement shows that the two concepts are linked for a long time and is in line with Polonsky’s (1995) conclusion “that industrial marketers are already utilizing ST, without necessarily realizing it” (p. 30).

2.3.6 Stakeholder Value Creation

The concept of value takes a central role in ST, as highlighted in many characterisations and definitions (e.g. Freeman, 1984; Harrison et al., 2010; Freeman, 2010;

Frow & Payne, 2011). Put simple, the core (theoretical) idea of ST is that an organisation should take into account the interests of and build relationships with its stakeholders in order to create economic and social value for the organisation, but also for its stakeholders.

Jensen (2001), however, criticized ST for not guiding managers in their decision how to prioritize in the case of competing and/or conflicting interests of different stakeholders, which resulted in a lively discussion among several scholars (e.g. Jensen, 2001; Wallace, 2003; Sundaram & Inkpen, 2004, Freeman et al., 2004). This shortcoming results from ST's aims to take into account all interests from stakeholders, compared to other concepts such as value maximization which clearly focuses on one objective, long-term market value creation (Jensen, 2001; Sundaram & Inkpen, 2004). Jensen (2001) states that "when there are many masters [(objectives)], all end up being shortchanged" (p. 9) whilst at the same time referring to the fact that more than 200 years of experience in economics and finance has shown that social welfare maximisation is the result of firms aiming to maximize their own firm value (with some exceptional cases such as monopolies or firms destroying the ecologic environment). As a result of his discussion, Jensen (2001) puts forward the idea of "Enlightened Stakeholder Theory" which adds the maximisation of long-term firm market value as the overall objective to ST, thus helping managers in their decision making process by adding a clear reference point. Freeman et al. (2004), in a direct reply to Sundaram & Inkpen (2004) who support Jensen's (2001) view, highlight that the world is too complex and uncertain to be simplified so much (to a single objective). The authors see the main aim of management in aligning stakeholder interests, which will ultimately result in shareholder value or profits. Compared to this, Jensen's (2001) and Sundaram & Inkpen (2004) believe that the (shareholder) value maximisation should be the main objective, and the management of stakeholder relationships has to be done in a way that it contributes to this very objective.

A practical approach towards value creation ST has been developed by Payne et al. (2005). Drawing on the earlier work on Christopher et al. (1991) and Christopher et al. (2002), the authors developed a planning framework for stakeholder relationships, based on and developed for the six markets model (customer, referral,

influencer, employee, supplier, and internal markets). The four steps in the framework include the (1) definition of stakeholder value propositions, (2) value delivery design, (3) stakeholder relationship market plans, and (4) measurement and feedback. Value exchanges are put at the core of the framework, highlighted by the statement that “Relationships with key stakeholders and parties are enhanced through the implementation of value-based strategies, enacted through value propositions. Likewise, the opportunities for value creation are enhanced through the development of relationships. Thus value creation and relationship development become highly integrated.” (Payne et al., 2005, p. 864). In summary, the authors developed a framework that highlights how value can be created through the strategic management of stakeholder relationships.

Compared to Payne et al. (2005), Frow & Payne (2011) focus more on the co-creation of value. Payne et al. (2005) recognised the co-creation of value and interrelationships between the stakeholders, e.g. by referring to “managers [that] found that an interaction in one domain – say, the customer markets – could impact on another” (p. 866), however it has not been integrated in their framework to a substantial degree. With respect to the interrelationships, they simply frame it as “the learning dimension of the model” (Payne et al., 2005, p. 866). Frow & Payne (2011), on the contrary, put co-creation at the centre of their iterative five step planning framework with the steps being: (1) identification of stakeholders, (2) determination of core values, (3) facilitation of dialogue and knowledge sharing, (4) identification of value co-creation opportunities, and (5) co-creation of stakeholder value propositions. Based on the co-created value propositions (as the result of the five step process) mutual value can be created and shared among the stakeholders. Thus, the framework supports managers in the difficult task of value (proposition) alignment in multi-stakeholder settings.

Haksever et al. (2004) have focused their work on the dimensions of value creation rather than the process. Classifying stakeholders in shareholders, employees, customers, suppliers, and society at large, the authors highlight the stakes each group has in a firm and how value can be created and destroyed in three sub-dimensions: financial, nonfinancial, and time. The inclusion of value destruction thereby is justified by the authors by the interdependences between the stakeholder interests or values. Haksever et al. (2004) conclude their paper by referring to five scenarios

resulting from management decisions: (1) value is created for one or more stakeholder(s) with no negative effect on other stakeholders, (2) value is created for one or more stakeholder(s) which results in a value destruction for one or more other stakeholder(s), (3) value is destroyed for one or more stakeholder(s) with no value creation for anyone else, (4) value is destroyed for all stakeholders, or (5) value is created for all stakeholders. Overall, the authors highlight that stakeholder values should not be regarded as independent from each other, but (in most cases) as being connected.

To summarise, despite its rationale, either being the main objective of management (Freeman et al., 2004) or a means to achieve value maximisation (Jensen, 2001), the alignment of stakeholder interests is seen as a key activity of ST. In the words of Freeman et al. (2007, p. 52): “The very idea of managing for stakeholders is predicated on the fact that the process of value creation is about finding the intersection of interests for primary stakeholders [... whereby] profits shouldn’t cause conflict with other stakeholders; they are the scorecard that tells us how well we are managing the whole set of stakeholder relationships”. In addition to the required alignment of stakeholder interests, it has to be noted that the different stakeholder values (partly) depend on each other, so that managers need to take into account the effect one stakeholder value has on the others, and vice versa.

2.3.7 Section Summary

Since its introduction by Freeman (1984), ST has been widely discussed, and also criticized. While there is still a debate what ST actually is (e.g. a framework, a way of thinking or a veritable theory), it significantly influenced how we think and act in terms of value creation. This section (2.3) introduced ST by illustrating its evolution and theoretical perspectives before a definition for this research was developed based on a characterisation of the concept. Following this, different stakeholder classification approaches were shown in order to contribute to a better understanding of who is meant by the broad term “stakeholder”. The last two sections were dedicated to the linkage between ST and RM, as well as stakeholder value creation. First, it was highlighted that both ST and RM are dedicated to relationship development and value creation. It has been outlined that ST can be seen as an

integral part of RM with only few research, however, truly integrating the two literature streams. Second, stakeholder value creation was discussed with a focus on the interrelationships between stakeholder interests and stakeholder value. In other words, the value created for one stakeholder might have an impact on the value created for another, thus, research needs to take into account the linkage of stakeholder values when aiming to understand value creation in a broader context.

In line with the discussions in this chapter, the conceptual framework being presented in section 2.2.7 can be enhanced by placing individual stakeholder values at the centre of the value creation process, next to the value of the relationship as a whole.

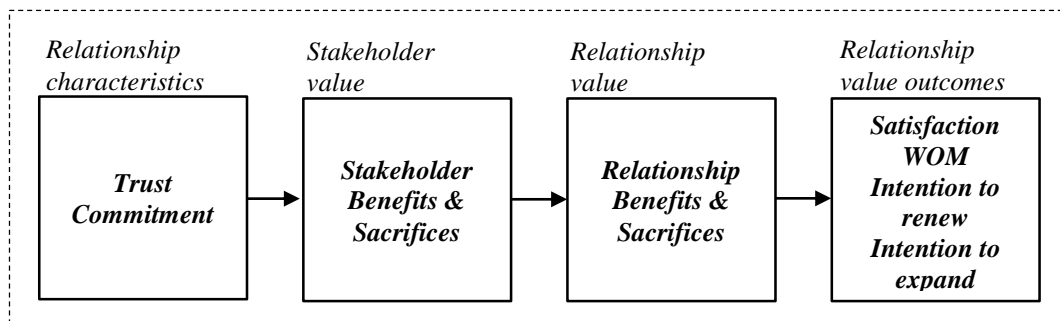


Figure 5: Conceptual RM & ST Framework

The next section is dedicated to UIR, the third literature stream in this research. UIRs will function as the field in which the conceptual framework developed in this research will be applied. Thus, the subsequent section will not only provide the foundation of UIRs (e.g. its evolution, theoretical bases, and definition), but at its core discuss the key elements of this research which have been worked out before (relationship value, its outcomes and antecedents as well as stakeholder value) in the context of UIR. The linkage between ST, RM and UIRs will result in a conceptual framework to be empirically tested afterwards.

2.4 University-Industry Relationships (UIRs)

UIRs are not a new phenomenon (Perkmann et al., 2013), but have become more prominent in the last decades. Not matter if universities are referred to as third-generation universities (e.g. Wissema, 2009), as entrepreneurial universities (e.g. Etzkowitz, 1983; Clark, 1998), engaged universities (e.g. Mcdowell, 2003; Breznitz & Feldman, 2012), or civic universities (e.g. Bamett, 2007; Powell & Dayson,

2013), today there is consensus, that universities and their relationships with business play a vital role in today's knowledge economy (Arvanitis et al., 2008). Embedded in the regional and national innovation system (Chung, 2002) universities work together with business organisations through various channels (e.g. collaborative research, joint curriculum development and delivery, or commercialisation) and create value for a variety of stakeholders.

The following sections will introduce UIRs and link it to RM and ST, respectively those components which have been derived from the literature review on the two research streams. The next section will begin with the history of UIR, outlining its evolution until today. Following this, different theoretical perspectives, including knowledge markets, knowledge production modes, triple helix, as well as entrepreneurial universities, are outlined before a definition of UIRs for this research is developed. The last sections elaborate on all components of the conceptual model in the context of UIR, namely stakeholder value, relationship value and further relationship outcomes, as well as relationship characteristics as antecedents of stakeholder and relationship value.

2.4.1 Evolution of UIRs and Its Role in Today's Society

The evolution of interactions between universities and business organisations has often been described by the rise of technology transfer activities, primary in the US as a result of the Bayh–Dole Act (e.g. Henderson, et al., 1998; Grimaldi et al., 2011). In contrast to the transactional perspective of technology transfer, this research focuses on the relationship perspective of these interactions, with special emphasis on relationships with a high degree of interaction as well as a medium to long-term objective. The development of these interactions and the current role of universities and UIRs in today's society can be shown by the general evolution of universities as outlined by Wissema (2009). The author refers to a three step evolution from first generation universities to second generation (or modern) universities, and finally to today's third generation (or post-modern) universities is highlighted.

The term first generation universities (also called traditional universities) refers to medieval universities which focused on “education-linked defending and finding the truth and obedience to the doctrines of the church” (Kyrö & Mattila, 2012, p. 5). In other words, the universities were responsible for educating professionals

whilst preserving and transmitting cultural knowledge (Etzkowitz et al., 1998), and as such protected by the state and church (Wissema, 2009). The transition toward a new generation of universities took place in the time of the Renaissance and the Enlightenment, and the related rise of humanism and societal changes (Kyrö & Mattila, 2012).

The second generation university (or modern university) was characterised by the integration of education and research. On one hand, research was meant to revive learning (Etzkowitz, 2001). On the other hand, the societal needs arising from the above described environmental changes required a new type of university. With the Anglo-Saxon model, the Humboldt model and the Napoleonic or Frech model, three main approaches developed during that time. While research in the Humboldt model was implemented in line with the intellectual interests of the academic community, the Napoleonic model proposed research to be in line with the policies or requirements of the state (Le Feuvre & Metso, 2005). In contrast to this, the Anglo-Saxon model refers to “a large-scale, market-driven, diversified, and hierarchical system where competition between institutions is general” (Rinne & Koivula, 2009, p. 185). The Anglo-American model finally integrated the features of the European Models (Sam & van der Sijde, 2014) and became the dominant model worldwide, as we know it today. During the second generation of universities, links between universities and business could be observed, with the extend depending on the type of model implemented and the respective time. For example, even with the Humboldt model putting forward academic freedom and the independence from government and business, evidence of cooperation has been found in the mid-late 1800s (Etzkowitz, 2001). Significant different were also observed between the US and Europe after the Second World War in which science played a crucial role. While UIRs were positively recognised in the US after the end of the war and there was a believe that they could contribute to society development, clear boundaries between academia and industry were drawn again in Europe as a result of the devastating impact science had in the war (Davey, 2015).

With the experiences of the Second World War contributing to a wider implementation of UIRs in the US and prevented UIRs to become prominent in Europe, it took until the 1980s for the next transition to arise and for UIRs becoming a central part of today’s universities. These third-generation universities aim to exploit

their know-how and to foster regional economic development (Wissema, 2009). Wissema (2009) refers to different trends which force universities to transform themselves into a post-modern or third-generation university. For example, universities need to find new revenue streams if they want to continue performing cutting-edge research in times of decreasing public funds. Businesses thereby provide an appropriate source of funding that can be utilized through UIR. In addition, in order to compete in a globalised world, universities need to enter relationships with those owning latest know how in both worlds, the academic as well as the industrial research world. Furthermore, governments demand universities to perform commercial activities with existing and new businesses (e.g. start-ups or spin-offs) so that they “become explicit instruments of economic growth in the knowledge economy” (Wissema, 2009, p. xiv). Due to the importance placed on these commercial activities, today academics and practitioners acknowledge that a “third mission” has been added to universities (e.g. Laredo, 2007), in addition to education and research which have been put forward in the first two university generations.

To summarise, universities passed two main transitions, or revolutions (Etzkowitz, 2001). First, traditional universities (first generation) which were primary focused on teaching developed into modern universities (second generation) by adding research to the agenda. Second, post-modern universities (third generation), as we know them today, emerged from these modern universities and put emphasis also on engaging with a wide variety of stakeholders, such as businesses or society in general. The post-modern universities integrate teaching, research and third-mission activities, often called transfer, innovation, business or engagement.

2.4.2 Theoretical Perspectives and Concepts on UIRs

UIRs have been researched from a variety of perspectives, including focuses on individuals in UIRs (e.g. D’este & Perkmann, 2011), universities in UIRs (e.g. Prigge, 2005), businesses in UIRs (e.g. George et al., 2002), the dyadic relationship between university and industry (e.g. Plewa, 2005), university-industry networks (e.g. Rampersad, 2008), or UIRs in the context of regional or national innovation systems (e.g. Leydesdorff & Guoping, 2001; Motohashi, 2005; Ramos-Vielba et al., 2010). The following sections highlight some of the key theoretical perspectives and concepts in UIR. Following a discussion on knowledge markets as the basis of

legitimacy to apply (relationship) marketing in the field of UIR, a section is dedicated to the distinction of Mode 1 and Mode 2 knowledge production. Finally, the triple helix model is highlighted before the last section brings the concept of the entrepreneurial university into focus.

2.4.2.1 Knowledge Markets

The legitimacy of marketing activities in UIRs can be justified by knowledge markets which bring intellectual offerings and corresponding demand together (Luke, 2005; Rausser, 1999). In this context, the term knowledge also includes technologies which can be understood as methodical knowledge embedded in products and processes (Boer et al., 2006; Kersten et al., 2002). As with every market, a knowledge market consists of knowledge providers (sellers/suppliers) and knowledge customers (buyers) (Meffert, 2000). With respect to UIRs, this means that business organisations, acting as knowledge customers, encounter a problem which they cannot or do not want to solve themselves and assign it to an external resource (Kuhn, 2003). On the contrary, research organisations, acting as knowledge providers, offer their research competencies, capacities and results to solve industrial problems, as stated by Baaken (1999). Consequently, a market of knowledge exists “where buyers and sellers can engage in order to exchange knowledge products and services” (Desouza & Awazu, 2004, p. 60).

Davenport and Prusak (1998) assume that exchange processes on these knowledge markets are based on general market principles. According to this, knowledge markets would behave equally to markets of tangible goods (Kuhn, 2003; Teece, 1998). Critics, however, argue that market mechanisms cannot be adopted without further ado (Kuhn, 2003) since market mechanisms on conventional markets are based on the lack and consumption of goods (Fehl & Oberender, 1990). These constraints could not be considered as valid in knowledge markets since after disposal and transmission, knowledge still remains available for sellers (Kuhn, 2003). However, one might argue that knowledge markets are working according to the principle of information advantages (Kuhn, 2003) which means that profit can only be realised by an imbalance of information/knowledge (von Hayak, 1945). Therefore, the economic value of knowledge depreciates since sellers lose their advantage when sharing/selling their knowledge (Jaros & Sells, 2004). As a

result, knowledge markets underlie market mechanisms just as conventional markets of goods and services (Kuhn, 2003). Recognising this fact, universities need to act market-oriented in order to create value for their customers. This, in turn, requires the application of marketing.

The thinking in knowledge providers and knowledge customers might lead to a more traditional view on marketing. In this view, a university would primarily take the role of the seller and the business organisation the role of the buyer. In UIR, however, value is often co-created (Vauterin et al., 2012) so that it is important to relate the knowledge markets idea not only to transactional marketing (e.g. licensing), but also and especially to RM (e.g. collaborative research).

2.4.2.2 Knowledge Production Modes

Another theoretical perspective on UIRs can be found in knowledge production modes. Gibbons et al. (1994) refers to a change from “Mode 1” to “Mode 2” knowledge production whereby the former represents knowledge production focused on science and academia, and the latter knowledge production in the context of application. A detailed characterisation of the modes can be found in Hargreaves (1999) who state that “Mode 1 is university-based, pure, disciplinary, homogeneous, expert-led, supply-driven, hierarchical, peer-reviewed” (p. 136) with Mode 2, which grows out of Mode 1, being “applied, problem-focused, trans-disciplinary, heterogeneous, hybrid, demand-driven, entrepreneurial, accountability-tested, embedded in networks” (p. 136). These characteristics show the significant diversity of the two modes, supporting Gibbons et al. (1994) who refer to differences between the modes “in nearly every aspect” (p. viii). With respect to the emergence of UIR, two key aspects can be highlighted. First, knowledge production in Mode 2 is no longer focused on pure science and driven by the academic community, but knowledge is produced in the context of application, meaning that actors with diverse backgrounds (e.g. discipline-wise, or actors from academia and industry) come together in order to address practical problems (e.g. Gibbons et al., 1994; Jacob, 2001; Nowotny et al., 2003). Thus, this mode is linked closer to the needs of industry. Second, the result of this work, the knowledge produced, is not anymore evaluated just by peers and primarily based on the relevance for science as in the case of Mode 1 (e.g. double-blind reviews of other academics for journal publications).

Rather, a wider set of stakeholders is involved who assess the work in a more multidimensional way, considering social, economic, political and further aspects (e.g. Gibbons et al., 1994; van Aken, 2005). In other words, apart from the benefits of Mode 2 knowledge production for the business sector, the relationship between this knowledge production mode and further stakeholders, such as society, can be accounted.

More recently, a third knowledge production mode, called “Mode 3” has been put forward. This mode promotes the idea of “coexistence and coevolution of different knowledge and innovation modes” (Carayannis & Campbell, 2010, p. 57), such as Mode 1 and Mode 2. Scholars have published various articles on Mode 3 knowledge production and linked it to related concepts, with especially Carayannis and Campbell (e.g. 2006, 2009, 2010, 2011, 2012) contributing to the advancement of the idea. However, until today, the third mode has not yet found its way in common literature reviews, which could be the result of a limited value of the idea, and/or the time lag in new idea being picked up.

2.4.2.3 Triple Helix

Yet another perspective on UIRs can be seen in the triple helix model which was first introduced by Etzkowitz and Leydesdorff (1995). In a later publication, the authors link the triple helix approach to the knowledge production modes presented in the previous section by stating that “the Triple Helix overlay provides a model at the level of social structure for the explanation of Mode 2 as an historically emerging structure for the production of scientific knowledge, and its relation to Mode 1” (Etzkowitz & Leydesdorff, 2000, p. 118). As such the triple helix model was developed to highlight the interaction and collaboration between three different actors, namely universities, businesses and government (Etzkowitz & Leydesdorff, 1995). Compared to Sabato’s Triangle (Sabato, 1975 cited in Etzkowitz & Carvalho de Mello, 2004) model in which the state plays the key role in innovation, and the national systems of innovation approach (Lundvall, 1988) in which with the firm is centred, the triple helix postulates that universities could be(come) the main actor in the knowledge society (Etzkowitz & Leydesdorff, 2000). Thus, the model supports the adding of a third mission to the responsibilities of university, next to edu-

cation and research. Core to the triple helix model is the assumption that the relationship (or its configuration) cannot be planned and synchronized a priori (Etzkowitz & Leydesdorff, 2000) as in the linear model of innovation. Rather, universities, industry and government are interacting in a dynamic way, highlighted by the model through the three spirals or helices.

Recently, society, more specifically the media-based and culture-based public (Carayannis & Campbell, 2009), was added as a fourth helix. The new model, entitled quadruple helix, highlights that policies and strategies on knowledge and innovation need to take into account the public (Del Giudice et al., 2012). For example, innovation policy affecting the economy should be well communicated through media to the public, and culture and values need to be considered when companies develop (public relation) strategies (Del Giudice et al., 2012). Just one year after the introduction of the quadruple helix, the same authors added yet another helix, the natural environment (Carayannis & Campbell, 2010). The authors state that “the Quintuple Helix Model is interdisciplinary and transdisciplinary at the same time: the complexity of the five-helix structure implies that a full analytical understanding of all helices requires the continuous involvement of the whole disciplinary spectrum, ranging from the natural sciences (because of the natural environment) to the social sciences and sustainable development and social ecology” (Carayannis & Campbell, 2010, p. 62). In other words, the quadruple helix already covers additional stakeholders very broadly by integrating the society, however, to comprehend the entire ecosystem in which society as well as the original stakeholders (university, industry, and government) play, the environment needs to be taken.

2.4.2.4 Entrepreneurial University

Closely linked to the triple helix model is the entrepreneurial universities concept, which, in its core, refers to the role and management of universities in the context of university-industry-government relations. While Etzkowitz (1983) introduced the term “entrepreneurial university” already in 1983, the concept itself only received considerable attention after the introduction of the triple helix model in 1995, and especially after the turn of the century. Clark (1998) characterises an entrepreneurial university by stating that “an entrepreneurial university, on its own, actively seeks to innovate how it goes about its business. It seeks to work out a substantial

shift in organizational character so as to arrive at a more promising posture for the future. Entrepreneurial universities seek to become ‘stand-up’ universities that are significant actors on their own terms.” (Clark, 1998, p. 4). A key element for universities which aim to successfully operate in highlight complex and uncertain environments and act self-reliant (Clark, 2001; Gibb & Haskins, 2014), thus being entrepreneurial, are UIR.

The importance of businesses and other stakeholders in the entrepreneurial universities has been highlighted by Gibb and Haskins (2014). The authors name five key pressures affecting current university, namely (1) funding, fees and competition, (2) government intervention, (3) innovation and business, (4) employability, employment and social mobility, and (5) local and regional partnership development. Gibb and Haskins (2014) argue that in order to address these pressures universities need to engage more with their stakeholders. This stakeholder thinking in the context of entrepreneurial universities is also put forward by Redford and Fayolle (2014) who believe that universities can only create the value they intent to create (especially society value) by engaging with a wide variety of stakeholders. From this stakeholder and society-focused perspective, the concept of the entrepreneurial university is closely linked to the one of the engaged university which is primary concerned about the community and region (Ramaley, 2005; Breznitz & Feldman, 2012).

To summarise, section 2.4.2 presented different theoretical perspectives and concepts on UIR. First, knowledge markets were presented as a legitimacy of marketing thinking in UIRs as a market exists with knowledge providers and knowledge customers. Second, Mode 1 and Mode 2 knowledge production modes highlight the change from pure science toward the generation of knowledge in the context of application, thus linking it more to industry. Third, the triple helix outlines the interaction between university, industry and government, putting emphasis on the dynamic and interactive nature of the relationship as opposed to a linear model of innovation. Lastly, the entrepreneurial university concept focuses on universities in the context of UIR, primary from a management perspective.

2.4.3 Definition of UIR

Following the presentation of the evolution of UIRs as well as central theoretical perspectives and concepts in the previous sections, the next two sections are dedicated to the provision of a better understanding of the UIR term. Thus, the next section will discuss some key characteristics of UIRs before a definition of UIRs for this study is developed.

2.4.3.1 Characteristics of UIR

The term UIRs is widely used in the academic literature. However, scholars in this field need to clearly define it as many other terms exist which refer to the same or similar phenomenon. Compared to other fields where often too many definitions of one specific term exist, the key problem in the UIR field is rather an overload of different terms, such as UIRs (e.g. Bonaccorsi & Piccaluga, 1994; Perkmann & Walsh, 2007), university-industry collaboration (e.g. Lee, 1996; Siegel et al., 2003), or university-business cooperation (e.g. Davey et al., 2011; Hewitt-Dundas, 2013). While each term can mean something different, the difference is often not envisaged or highlighted. Rather, terms are often just used interchangeable. With several terms existing for the “university” side (e.g. university, academia, science, higher education institution), the “industry side” (e.g. industry, business, firm, company) and the “relationship” (e.g. relationship, relation, interaction, collaboration, cooperation, linkage, link), the combination possibilities reach more 100 just with the terms presented here. In addition, some scholars also switch the order of the terms, e.g. business-university (e.g. George et al., 2002; Lambert, 2003) or business-academia (e.g. Uchihira, 2005; Havas, 2013) to emphasise the importance of the industry partner. Others add a third term in between, e.g. to refer to a network structure as in the case of “university-industry-government relationship” (e.g. Inzelt, 2004) or to show the focus of the relationship, e.g. in “university-industry research relationship” (e.g. Blumenthal et al., 1986). Ultimately, these two adaptations create even more confusion.

Davey (2015) aims to shed light on the usage of terms in UIRs by performing a bibliographic analysis on ten different terms between 2003 and 2012, using the Web of Knowledge/Web of Science. He found that the total number of publications was the highest for the terms university-industry collaboration (72), followed by

UIRs (49), university-industry relations (45) and university-industry interaction (43). In terms of citations, however, the term university-industry relations came first (936), followed by UIRs (475) with all further terms having less than 350 citations. Considering the close link between the terms relationship and relations and the fact that the terms university and industry are the most used ones (Davey, 2015), it seems valid to stick to the term UIRs as put forward in this study.

Following the idea of Clarkson (1995) from ST to separate three main factors (the organisation itself, its stakeholders, and the relationships between the organisation and its stakeholders), the term UIRs can also be separated and discussed by detailing each part of the term individually, namely universities, industry organisations, and the relationship between the two.

First, according to the web version of the Oxford Dictionary (Oxford University Press, 2014), the term university refers to “A high-level educational institution in which students study for degrees and academic research is done”. Interestingly, the definition does not comprise the third mission or entrepreneurial activities undertaken by the university, as highlighted in the previous sections. Compared to this, Davey et al. (2011, p. 7) include “all types of institutions, which provide higher education and are the source of new knowledge and technology which are formally recognised by the relevant national/regional authority and include: universities, universities of applied sciences, polytechnics /technical universities and colleges and tertiary schools”. While the third mission or external organisations such as businesses are not explicitly mentioned in the report of Davey et al. (2011), which specifically focuses on UIR, it can be implied as industry can be considered as the main stakeholder sourcing technologies and knowledge, with students being the number one recipient of knowledge.

Second, the term industry in the narrow or classical sense is defined as “economic activity concerned with the processing of raw materials and manufacture of goods in factories” (Oxford University Press, 2014), as highlighted in the web version of the Oxford Dictionary. In wider or more modern definitions, industry refers to the “basic activity of the enterprise (being manufacture, service or commerce)” (Lagodimos et al., 2007, p. 508). That the term industry is not limited anymore to the classical production of products is also emphasised by the different usage of the

term in today's language, e.g. in service industry (e.g. Reijers, 2003), tourism industry (e.g. Werthner & Klein, 1999) or banking industry (e.g. Bikker & Haaf, 2002). Thus, industry can be considered as any business activity, including manufacturing, service and commerce.

The third and last term included in UIRs is "relationship". In a business case, the term generally refers to organisations that "form strong and extensive social, economic, service and technical ties over time, with the intent of lowering total costs and/or increasing value, thereby achieving mutual benefit" (Anderson & Narus, 1991, p. 96). In line with this, UIRs can be understood as interactions where different parties contribute resources to a (research) project and share the benefits proportionally to their contributions (Lambert, 2003). In the context of UIRs, the relationships are often described and defined by the channels or types of interaction between the parties. Overall, more than 25 different channels can easily be found in literature whereby some are rather formal and some rather informal ones. For example, conferences (e.g. D'Este and Patel, 2007) and personal contacts (e.g. Meyer-Krahmer & Schmoch, 1998) can be considered as informal channels while collaborative research (e.g. Schartinger et al., 2002) and the use of university facilities (e.g. Arvanitis et al. 2008) are most often quite formalised. In addition to the differentiation based on the formalisation degree, the channels can also be structured according to the main mission of the university they (primary) related to, namely education, research, or innovation / engagement / business (third mission). The following table provides some of the key formal channels as well as example references.

| Mission | Channel | Example references |
|--|---|---|
| Education | Joint curriculum development and delivery | Boersma et al. (2008); Davey et al. (2011) |
| | Student mobility | Lee (2000); Lamichhane & Nath Sharma (2010) |
| | Joint thesis supervision | Meyer-Krahmer & Schmoch (1998); Schartinger et al. (2002); Agarwal & Henderson (2002) |
| | Lifelong learning | Davey et al. (2011) |
| Research | Collaborative research | Meyer-Krahmer & Schmoch (1998); Schartinger et al. (2002) |
| | Contract research | Schartinger et al. (2002); Bekkers & Freitas (2008); |
| | Publications | Agarwal & Henderson (2002); Link et al. (2007) |
| | Use of facilities | Arvanitis et al. (2008) |
| | Mobility of academics | Schartinger et al. (2002); |
| Innovation / engagement / business | Licensing / IP and product sales | Klofsten & Jones-Evans (2000); Agarwal & Henderson (2002); Link et al. (2007) |
| | Spin-off creation | Shane (2004); Bercovitz & Feldman (2006) |
| | (Student) start-up creation | Astebro & Bazzazian (2010); Davey et al. (2011) |
| | Joint ventures | Link & Siegel (2005); Bercovitz & Feldman (2006); Perkmann & Walsh (2007) |
| | Consultancy | Link et al. (2007); Arvanitis et al. (2008) |
| | Seminars for industry | Meyer-Krahmer & Schmoch (1998) |

Table 5: Key UIR Channels by University Mission

In addition to these channels, governance or management-related interaction types can be named, such as the integration of partner representatives in boards or committees (Santoro & Chakrabarti, 2002; Davey et al., 2011; Plewa et al., 2014).

2.4.3.2 Relevant Definition for this Thesis

In order to develop a definition of UIRs for this thesis, four different approaches to define UIRs or a related term have been selected. The approaches are presented in the following table and will serve as a discussion basis for the development of a definition suiting the specific context of this research.

| Definition | Reference |
|---|-----------------------------------|
| “The term knowledge interaction is used here to describe all types of direct and indirect, personal and non-personal interactions between organisations and/or individuals from the firm side and the university side, directed at the exchange of knowledge within innovation processes.” | Schartinger et al. (2002, p. 304) |
| “UIRs are trusting, committed and interactive relationships between university and industry entities, enabling the diffusion of creativity, ideas, skills and people with the aim of creating mutual value over time.” | Plewa (2005, p. 65) |
| “University-industry collaborations pair the discovery and dissemination of knowledge with the application of that knowledge to the creation of goods and services. Properly constructed, these collaborations ultimately endow society with a public good far exceeding the combined contributions of the parties: economic growth, an improved standard of living, an extension of humanity’s intellectual reach. In the broadest sense, the goal of university-industry collaborations should be to create this public good while simultaneously satisfying the mission and objectives of each partner.” | NCURA (2006, p. 3) |
| “UBC is defined as all types of direct and indirect, personal and non-personal interactions between HEIs and business for reciprocal and mutual benefit including: collaboration in R&D, personnel mobility (academics, students and business professionals), commercialisation of R&D results, curriculum development and delivery, LLL, entrepreneurship and governance” | Davey et al. (2011, p. 25) |

Table 6: Selected UIR Definitions

Comparing the four definitions presented above, several similarities and differences can be observed. First, except for the definition of NCURA (2006), all approaches clearly point towards academic and industry partners working together. With respect to the NCURA (2006) definition, however, it needs to be considered that it is rather a longer description than a specifically formed definition, so that the parties involved are simply integrated in the term (university-industry collaboration) itself. Second, all definitions refer to the bi-directional exchange, rather than a one-way transfer. Schartinger et al. (2002) refers to interactions, so does Davey et al. (2011). Plewa (2005) uses the wording “interactive” while NCURA (2006) refers to collaboration. With respect to the element(s) of exchange, however, differences can be found. Schartinger et al. (2002) and NCURA (2006) focus solely on the exchange

of knowledge, whereas Plewa (2005) includes creativity, ideas, skills and people as the resources to be “diffused”. Davey et al. (2011) does not specify any resources exchanges, but provides more clear information on the exchange channels. Third, all definition provide a clear goal or imply it. Schartinger et al. (2002) refers to innovation processes so that innovation can be regarded as the key objective of her definition. Plewa (2005) and Davey et al. (2011) refer more generally to mutual value respectively mutual benefits with Plewa (2005) also adding a time dimension by referring to value creation over time (which is in line with the CLV concept presented in section 2.2.3.2). Compared to this, the definition of NCURA (2006) provides a longer list of objectives, including economic growth, an improved living standard, and an extension of humanity’s intellectual reach. By specifically referring to society, NCURA (2006) also integrates additional stakeholders, not only university and industry. This stakeholder thinking is also highlighted by the goal of “simultaneously satisfying the mission and objectives of each partner” (p. 3). Lastly, Plewa (2005) adds relationship characteristics driving UIR, an element not found in any of the other definitions.

To summarise, five key elements can be derived from the definitions: (1) the key stakeholders involved, (2) bi-directional exchanges of resources through channels, (3) an ultimate goal, (4) a wider stakeholder thinking, as well as (5) relationship characteristics driving UIR. Looking at these five elements, a clear link to the RM and ST characterisations and definitions can be noticed.

Integrating the above considerations, the focus of this research on collaborative research, contract research, consultancy, and mobility, as well as the elaborations in the literature review on RM and ST, the following definition for UIRs will be used in this study:

University-Industry Relationships refers to interactions between trusting and committed stakeholders in the form of collaborative research, contract research, consultancy and/or staff mobility. Through bi-directional resource exchanges, the university as well as its business partner aim to maximise value creation, not only for themselves, but also for further, indirect stakeholders.

Within this thesis the term university will be used as a "catch-all" for any institution for which higher education is its core business, including universities, academies, technikons and postsecondary vocational and technical schools. Similarly, the term industry means any business organisation and is therefore not limited to traditional industrial companies. Hence, "university-industry" covers any higher education institution, and any business organisations. For comprehensibility purposes, the terms industry and business will be used interchangeable in this research.

While the term UIRs refers to two main parties, namely universities and industry, this research follows a wider stakeholder perspective and integrates other stakeholders in the definition. In other words, university and industry are the two main stakeholders, however, the definition also recognises the existence of additional stakeholders, such as society, and the aim to create value for them as well. In order to not make the term itself too complex (see the development of the triple helix model to the quadruple helix model, the quintuple helix and the n-tuple helix model as an example; see Leydesdorff, 2012), the term was chosen to be limited to UIRs for the benefit of simplicity compared to alternatives such as university-industry-government-society relationships or similar.

2.4.4 Stakeholders in UIRs

Having defined the term UIRs as not only considering the two main actors (university and industry), but also further stakeholders, the question arises which individuals, groups or organisations have a stake in the relationship. Acknowledging that a priori grouping of stakeholders (e.g. on the basis of the classification approaches presented in section 2.3.4) might not reflect the heterogeneity of the stakeholders and their stakes (Winn, 2001), we follow Harrison and Freeman's (1999) call for more detailed typologies and define stakeholders of UIRs based on a review of existing literature rather than using existing classification to determine potential stakeholders.

While more than 20 different stakeholders can easily be identified in literature, six can be considered as key stakeholders in the scope of this research, namely (1) the university and (2) the business partner as organisations, the individual (3) university staff and (4) business staff working in the relationship, (5) students as well

as (6) society. Davey (2015) classifies university and industry as meso level stakeholders, staff and students as micro level stakeholders and society as macro level stakeholders.

Universities and business organisations were highlighted in the characterisation of UIRs as the two key stakeholders involved in UIRs. With respect to the stakes in UIR, a differentiation between those who manage (and/or administer) a university (e.g. university board member) or a business (e.g. chief executive officer, or managing partner) and those staff members who performs the research in the relationship seems justifiable (in the following the term “research staff” will be used for simplicity reasons even if consulting and other work is included in this thesis as well). This distinction is in line with the separation of controllers and executor as put forward by Callan et al. (1999) or the differentiation of owners and users by Turner (2006) whereby the former terminology might suit more the university context and the latter the business context (assuming that the management in the business is performed by a managing partner, not a chief executive who is employed without being a shareholder). In addition to these four stakeholders (management as well as research staff on the university and the business side), students can be regarded as one of the most important (indirect) stakeholders (e.g. Trakman, 2008; Redford & Fayolle, 2014), as they represent the main focus point of universities from an education perspective. Lastly, society represents a rather broad stakeholder group as UIRs are expected to contribute to the general public, e.g. in form of improved solutions for societal problems (Gibb & Hannon, 2006).

Further stakeholders which are not included in this research are regions, science, industry in general, other universities (competitors or partners), technology transfer offices and other intermediaries, alumni, potential students, just to name a few (Siegel et al., 2003; Anderson et al., 2007; Kesting, 2013; Davey, 2015)

While existing classification approach might not be suitable for the identification of stakeholders, they can be a valuable structure for their characterisation. The next two tables present the identified stakeholders and classify them according to some stakeholder classification approaches outlined in section 2.3.4 of this thesis. The first table views the different stakeholders from the point of view of the university (thus, the university is not seen as a stakeholder itself). The second table takes a relationship perspective, whereby the university and the business are both

“shareholders” of the UIR. For the interpretation of the table it is important to note that each stakeholder can have multiple “roles”. For example, the business can be a shareholder of the results, but at the same time be a supplier as it brings knowledge, experience and further resources into the relationship.

| | Primary vs. secondary | Internal vs external | Derivative vs. norma- tive | Customers, employees, sharehold- ers, and sup- pliers | Controller, executor, constraining advisor, dis- cretionary advisor |
|---------------------|----------------------------------|---------------------------------|---|--|--|
| University | - | - | - | - | - |
| Business | P | E | N | SU, C | C |
| University staff | P | I | N | E | E |
| Business staff | P | E | N | SU | E |
| Students | S | E | N | C | - |
| Society | S | E | N | C | - |

Table 7: Stakeholder Classification from the University Perspective

| | Primary vs. secondary | Internal vs external | Derivative vs. norma- tive | Customers, employees, sharehold- ers, and sup- pliers | Controller, executor, constraining advisor, dis- cretionary advisor |
|---------------------|----------------------------------|---------------------------------|---|--|--|
| University | P | I | N | SH, SU | C |
| Business | P | I | N | SH, SU | C |
| University staff | P | I | N | E, SU | E |
| Business staff | P | I | N | E, SU | E |
| Students | S | E | N/D | C | - |
| Society | S | E | N/D | C | - |

Table 8: Stakeholder Classification from a UIR Perspective

Having detailed the different stakeholders of UIRs, the following section will highlights the benefits and sacrifices of each stakeholder group.

2.4.5 Relationship Value in UIRs

Despite the grounded theory of value and its significance for the success of a relationship (Business-Higher Education Forum, 2001), research on value creation in

UIRs has been sparse. The next two sections will discuss the benefits and sacrifices of each stakeholder identified in the previous section. The discussion is primary based on the work of Davey (2015) who makes use of van der Sijde's (2012) capital gains approach and integrates further aspects of D'Este and Perkmann (2011) and Bozeman et al. (2012) in order to classify the benefits and sacrifices of different stakeholders into strategic capital, network capital, cultural capital, and economic capital. Davey (2015) takes into account nine different stakeholders of UIRs and a wide range of value elements found in literature for each of these stakeholders. Therefore, his work can be considered as one of the most extensive studies on benefits and sacrifices in UIRs.

Van der Sijde's (2012) capital gains approach is based on four elements, strategic, network, cultural and economic capital. He understands strategic capital primary in terms of power / authority, network capital as relationship-oriented aspects, cultural capital as knowledge and experience, and economic capital as finances and other resources. Davey (2015) advances this approach by adding increments to knowledge (Bozeman et al., 2012) and learning (D'Este & Perkmann, 2011) to the cultural dimension. In addition, he extends the economic dimension by specifically considering increments of wealth (Bozeman et al., 2012) as well as commercialisation, access to funding, and access to in-kind resources (all based on the work of D'Este & Perkmann, 2011).

The following section will outline the benefits of UIRs for the different stakeholders, using the capital gains approach developed by van der Sijde's (2012) and extended by Davey (2015).

2.4.5.1 Benefits

As one of the two elements of value, which is understood as the trade-off between benefits and sacrifices, benefits have received considerable attention in UIR literature (e.g. Lee, 2000; Mora Valentin, 2000). Due to the wide range of positive outcomes provided by UIRs for each stakeholder, only key benefits will be briefly discussed in the text with further benefits being presented in a table format in Appendix 1. The table elements are based on the work of Davey (2015), however, partly rewritten, combined and reordered with some new elements also being added. Both, the following description of key benefits as well as the tables in Appendix 1

highlight the benefits' classification according to the capital gains approach outlined above.

First, universities benefit economically from UIRs as a new source of income, e.g. through commercialisation and research funding (Barnes et al., 2002, Santoro, 2002; Bercovitz & Feldman, 2006). Culturally, the main value of UIRs lies in the ability to develop better education programs which are aligned to industry needs (Wilson, 2012; van der Sijde 2012) as well as new (practical) knowledge gain for future research activities (Gibbons et al., 1994; Arvanitis et al., 2008). From a strategic perspective, UIRs can encourage motivation and productivity (Gray, 2000; Kruss et al., 2011), improve the reputation and image of a university (Ahrweiler et al., 2011; van der Sijde, 2012) and help the university to fulfil their third mission (Carayol, 2003, Davey et al., 2011).

Second, UIRs bring new knowledge and skills into businesses (Bonaccorsi & Piccaluga, 1994; Lee, 2011) which then benefit in terms of new or improved market offerings, internal processes or adapted business models (George et al., 2002; Strunz et al., 2003; Bercovitz & Feldman, 2006), ultimately leading to increased income and shareholder value (Lee, 2011; van der Sijde, 2012). This can be facilitated through the reduction of R&D expenses (Barnes et al., 2002; George et al., 2002). From a network perspective, industry also benefits from an improvement in recruitment of students and university staff (Bonaccorsi & Piccaluga, 1994; Perkmann et al., 2011) as well as the general access to the university knowledge base (Kaufmann & Tödtling, 2001). Strategically speaking, UIRs foster the early detection and access to new discoveries (Bonaccorsi & Piccaluga, 1994), stimulate innovation (Kaufmann & Tödtling, 2001), and improve the reputation and image of the business (Perkmann et al., 2011; van der Sijde, 2012).

Third, one of the most stated benefits for university staff refers to access to resources, especially funding, but also research equipment, as well as private financial gain (Nedeva et al., 1999; Carayol, 2003; D'Este & Patel, 2007). In addition to these economic benefits, many scholars refer to new opportunities to identify knowledge gaps and real world problems (Grossman et al., 2001; Strunz et al., 2003), to test theories and research outcomes in reality (Carayol, 2003), to develop new skills and competences through the interaction with practice (van der Sijde, 2012) and finally to increase publication performance (Zucker & Darby, 1996;

Abramo et al., 2009). Davey (2015) refers to all these benefits as cultural capital. With respect to strategic capital gains a potential increase in reputation can be argued (Davey et al., 2011; van der Sijde, 2012). Network capital gains might include enhanced access to new contacts and network (D'Este & Perkmann 2011; Bozeman et al., 2012).

Fourth, business staff primary benefits from new skills, knowledge and experiences being developed in UIRs (Santoro & Chakrabarti, 2001; Santoro & Chakrabarti, 2002; van der Sijde, 2012) (cultural gains) which help them to perform their job well, and finally might results in reputation and increased chances of promotion as a result of this good job performance (Lawson and Samson 2001). In addition, business staff might be rewarded economically, e.g. through an increased salary, bonuses or shares in a new venture (Lawson & Samson, 2001).

Fifth, students benefit from UIRs culturally by extending their skills, knowledge and experience (Gray, 2000; Ilyas, 2004) through the exposure to practical challenges (Ginzburg & Houli, 2013) and the ability to put theoretical concepts into application (Kock et al., 2000; Ginzburg & Houli, 2013). These cultural capital gains can result in students being more motivated (Strunz et al. 2003) and better prepared for jobs, thus increasing their employability right after their studies, but also afterwards, a key strategic capital gain (Knouse et al., 1999; Carayol, 2003; European Commission, 2009). In addition, UIRs enable students to extend their network (van der Sijde, 2012) and provide internship opportunities (Shahabudin, 2006), both network capital gains. Lastly, from an economic perspective UIRs allow students to receive direct income (e.g. through internships) (Hedvall, 2011) and increase their value in the marketplace (e.g. Davey et al., 2011), often resulting in higher salaries in their first job (Gault et al., 2000).

Sixth, society benefits from UIRs as they support the development of solutions for and thus address society problems and needs (European Commission 2003). From a strategic perspective UIRs foster the development of entrepreneurship which again helps to respond flexible to the rapidly changing conditions in today's knowledge society (Drucker & Goldstein, 2007), potentially leading ultimately to economic capital gains in form of increased employment, and economic development and growth (e.g. European Commission, 2003). From a network perspective,

UIRs help to build clusters or centres of excellence which bring different stakeholders together to create the mutual value described above (Bonaccorsi & Piccaluga, 1994).

To summarise, UIRs provide various benefits for the key stakeholders identified in this research. In other words, all stakeholders gain certain strategic, network, cultural and economic capital from UIRs, with the benefits' distribution among the capital gains differing from stakeholder to stakeholder.

2.4.5.2 Sacrifices

Similar to the stakeholder benefits of UIR, various sacrifices can be identified in literature. Notably, in nearly all discussions and lists of benefits and sacrifices, the number of sacrifices named is much lower than the number of benefits. Following the approach of the previous section, the sacrifices are presented for each stakeholder separately. Due to the smaller number of sacrifices per stakeholder, all sacrifices are discussed in text form with no need to add tables as in the case of the benefits presentation in the previous section.

First, the most extensively discussed sacrifice for universities refers to the potential limitation of academic freedom, e.g. the freedom of choice of research topics or the research focus in general, and the ability to publish results (e.g. Lee, 1996; Cooper, 2009). Next to this, investments of (limited) resources in the establishment, development and maintenance of UIRs are required, which affect other activities, leading some scholar even questioning the economic viability of UIRs (Allen, 1977; Hagedoorn et al., 2000; Sonnenwald, 2007; Bozeman et al., 2012). Lastly, a decreased research productivity is highlighted by Carayol (2003).

Second, businesses involved in UIRs might sacrifice timeliness and progress due to the differing cultures in academia and industry (Maggiora, 2008). An additional problem resulting from the varying focuses of the two partners might be the lack of practicability of results (Corsten, 1987). Furthermore, businesses need to take into account the influence of UIRs on intellectual property issues (e.g. shared ownership) or the disclosure of results (e.g. through publications) (Maggiora, 2008).

Third, individual academics might perceive costs in terms of increased workload resulting from additional activities to be performed as part of the “third mission role” (Chatterton & Goddard 2000; Kock et al., 2000). With respect to cultural aspects, UIRs might limit the academics opportunities to disclose / publish their work (Carayol, 2003) and decrease their productivity (Agrawal & Henderson, 2002; Carayol, 2003; Goldfarb, 2008). Lastly, economic sacrifices might occur in case of unsuccessful entrepreneurial activities performed by individual academics (Zahra et al., 2007; European Commission 2009).

Fourth, business staff might face problems with respect to the timeliness and progress of a project undertaken with a university, which might affect their performance and/or reputation (Maggiore 2008).

Fifth, students might be negatively affected by UIRs as they become a “product” to be traded in the interaction between university and industry (Slaughter et al., 2002). Additionally, economic losses might occur if students enter into entrepreneurial activities and fail (Levratto, 2013).

Sixth, society might have to make sacrifices in terms of research being dedicated to societal needs as R&D might shift more towards industry interests (Ssebuwufu et al., 2012).

On the whole, the number of sacrifice dimensions named in UIR research is significantly lower than the number of benefit dimensions. This, however, does not mean that the benefits always exceed the sacrifices in UIR, resulting in positive value, as the extent of each dimension has to be taken into account.

2.4.6 Outcomes of Relationship Value in UIRs

Having outlined the different UIR stakeholders and their benefits and sacrifices, this section is dedicated to the outcomes of relationship value in the context of UIR. The section follows the structure used in the RM literature review and will introduce the four identified outcomes one after another, starting with (1) satisfaction, hereinafter (2) WOM, and (3) intention to renew, and finally (4) intention to expand.

2.4.6.1 Relationship Satisfaction

Satisfaction has been researched in a variety of UIR studies, often with satisfaction being a measure of success (Wu, 1993; Mora-Valentin et al., 2004) or effectiveness (Spann et al., 1995; Stock & Tatikonda, 2000) with early research being primary conducted in the area of technology transfer, thus a rather transactional approach towards linkages between universities and business organisations. The works of Plewa and her colleagues (e.g. Plewa, 2005; Plewa et al., 2005; Plewa & Quester, 2006; Plewa & Quester 2007) can be regarded as central in the investigation of satisfaction in UIRs from a RM perspective. Plewa (2005) conceptualises satisfaction as an outcome of three relationship characteristics, namely trust, integration and commitment. The empirical results of her dyadic study of UIRs in Australia indicate that integration has the strongest direct effect on satisfaction whereby the highest total effect was reported for the trust-satisfaction link.

Frasquet et al. (2012) investigated satisfaction as a central element in their study on UIRs in the social sciences sector in Spain. Based on a total of 322 responses from companies that worked with the University of Valencia in an internship programme, the study confirmed communication positively effecting satisfaction which in turn positively impacts trust and commitment. A positive impact of satisfaction on collaboration, however, had to be rejected. Compared to Plewa's (2005) study, which conceptualises relationship characteristics as antecedents of satisfaction, Frasquet et al. (2012) only see communication as an antecedent whereby trust, commitment and collaboration are outcomes of relationship satisfaction.

Another scholar researching satisfaction in UIRs is Coberly (2004) who focuses on faculty satisfaction in industry-university research centres and confirms, based on data from the US, that satisfaction has a positive impact on commitment and retention cognitions. Harman (2004) dedicates his work on the satisfaction on doctoral education in Australian Cooperative Research Centres while Hemmert et al. (2008) compare the satisfaction of Japanese and Korean firms with respect to UIR. Lastly, Larsen et al. (1987) found high satisfaction rates in university-industry technology transfer in the microelectronics sector.

From a more practical perspective, satisfaction has been investigated in the form of customer satisfaction surveys in UIRs, for example by von Hagen et al. (2006), Baaken (2004) and Kliewe (2010). Based on the CS/D model, the authors gathered data on the expected performance and the perceived performance of companies working with a university. The results indicated various gaps to be closed to improve UIRs.

Probably the closest linkage between satisfaction and value can be found in the work of Daniel et al. (2002). In their study on collaborative R&D programs, the authors aim to develop a value assessment model and use “satisfaction [as] a critical indicator of the value created by a research center”. However, as satisfaction and value are two distinct concepts, a separate exploration of the two concepts in the context of UIRs seems worthwhile.

To summarise, while previous studies show that satisfaction is an important element in UIRs which has been researched in various forms, e.g. on different channels of UIRs, with different focuses (faculty, industry, dyadic) and with different conceptualisations (e.g. regarding relationship characteristics), no studies have been found investigating the linkage between relationship satisfaction and relationship value, confirming the need to conduct research as proposed in this study.

2.4.6.2 Word of Mouth

Compared to satisfaction, WOM has received much less attention in the UIR literature with studies primarily taking a superficial look at the concept. For example, Lee and Win (2004) refer in their paper on university research centres in Singapore to WOM as an information dissemination instrument directed towards clients and partners. Thereby, not only university employees, but also customers and partners themselves often disseminate the university’s capabilities, technologies and products. That this kind of WOM is valuable for universities has been empirically confirmed by Plewa et al. (2005) who conducted interviews with university and business representatives. WOM was highlighted by interviewees from university as one of the non-economic value-creating factors and classified as a strategic benefit by the authors. With respect to this, Muscio (2013) emphasizes, however, that proximity is important as it facilitates informal information sharing in UIR, such as WOM.

WOM has also been found as a positive outcome in university education and further training. Keithley and Redman (1997), for example, mention in their case study on management development provided by a UK university, that WOM helped the university to position its education offers in the competitive marketplace, as the reputation of the client benefits the university position in the market. Sharda & Butler (2004) recognise that WOM is especially valuable in attracting international students. In particular, they highlight the possibility to strategically foster alumni to promote the university's education offering in their home country

Next to external WOM in education and research, WOM can also be internally focused. In their paper on university spin-off activities, O'Shea et al. (2007) highlight a statement of the Technology Licensing Office's director of the Massachusetts Institute of Technology stating that 'there is very much a word of mouth culture among the faculty almost to a point if you haven't done one [a spinout] yet you start to wonder what is wrong with you" (p. 9). Thus, WOM can also facilitate the creation of new UIRs activities within an organisation.

With respect to the linkage of relationship characteristics and WOM, Plewa et al.'s (2013) empirical study on the evolution of UIRs can be highlighted. The study researches the initiation phase, the engagement phase, and the continuing engagement phase and found that trust has a positive and direct influence on WOM in the last of these phases. Perzon (2015) in their study on education-oriented UIRs also refer to the trust-WOM link, however, in the opposite direction. The author states that WOM is important for trust building. The result is not surprising as it refers to the preparation phase of UIR, or as Plewa et al. (2013) call it, the initiation phase. Thus, the differing results found by Perzon (2015) and Plewa et al. (2013) can be explained by the respective evolution stage of the UIR. The importance of WOM for the preparation phase has also been highlighted by Plewa et al. (2013) who present various statements of university interviewees stating that WOM helps to attract business partners as they understand the university's expertise and the opportunities which might lie in collaborating with the university.

As with satisfaction, no UIR research has been found that links WOM to relationship value. Owing to the RM literature, however, a positive impact of relationship value on WOM can be expected, which is, however, still to be confirmed in the UIR context.

2.4.6.3 Intention to Renew

The intentions to renew or continue existing relationships have only received limited attention in UIR literature. Compared to research on WOM and especially on satisfaction, the amount has to be regarded as rather small. Given this lack of research on intentions to renew in UIRs (Plewa & Quester, 2007), three main works have been identified for a more extensive discussion, namely Gray et al. (2001), Daniel et al. (2002) and Plewa (2005).

First, Gray et al. (2001) investigate member retention in industry-university research centres, whereby such an entity can be considered as “a semi-autonomous research entity within a university that operates independently of academic departments” (p. 247). Based on 249 responses from firms who are involved in the National Science Foundation Industry-University Cooperative Research Center Program and pay around US\$30.000 to US\$50.000 membership fee per year, the authors aimed to identify the factors influencing membership renewal. The results indicate that structural characteristics (e.g. number of staff, the age of the centre, or fees) do not affect membership renewal whereas one of the two measured member benefits does. The authors found that professional networking benefits, which included student recruitment as well as co-operation benefits, foster members to continue their membership while technical benefits do not. In addition, among the organisational processes, the quality of research was not found to significantly influence membership renewal whereas the relevance of research as well as administrative operations do. The authors suggest that these results might indicate “the relative importance of future rather than past payoffs when considering renewal” (Gray et al., 2001, p. 253). This relative importance of relationship and technical factors on renewal, however, might vary depending on the form of relationship (one-on-one vs. multi-member) (Gray et al., 1987). Nevertheless, the positive affect of networking benefits and relevance of research as well as the missing effect of technical benefits and quality of research might refer to the high importance of relationship-related factors in UIR, thus supporting the RM approach taken in this study and the positive value-intention to renew link proposed in RM research.

Second, Daniel et al. (2002) investigate the intention to renew a membership in a similar context as Gray et al. (2001), more precisely, in 58 National Science Foundation sponsored centres. Based on a total of 952 cases, the authors confirmed

that technology transfer behaviour (in form of communication) as well as satisfaction positively influence commitment, which has been operationalized as intention to renew in the study. As mentioned in the discussion on satisfaction in UIRs in this research, Daniel et al. (2002) make the case for using satisfaction as an indicator for value. While this research distinguishes between satisfaction and value, a close link between the concepts is acknowledged so that Daniel et al.'s (2002) results can be seen as an indicator of a positive influence of relationship value on the intention to renew.

Third, Plewa (2005) investigated the intention to renew in the context of Australian UIRs and was interested in the effect of trust, commitment and integration on renewal intentions. Having gathered 207 responses for her generic model, she also achieved to collect 62 dyads, meaning matching data from the university and industry side of the UIR. As a result, Plewa (2005) provides results on two models, a generic one and a dyadic one. The results of the generic model show that commitment and integration were found to significantly influence renewal intentions whereby the hypothesized path between trust and intention to renew had to be eliminated. In the dyadic model commitment was confirmed as the only of the three relationship characteristics to influence renewal intentions.

In summary, research on intentions to renew existing UIRs can be considered as limited. With respect to the relationship between relationship value and intention to renew, only the work of Gray et al, 2001) and Daniel et al. (2002) has been found that indicates a positive effect of the former on the latter in UIR. The former, however, only refers to benefits and leaves out the sacrifices dimension of value. With respect to the latter study, however, it has to be mentioned that the authors used satisfaction as an indicator for value, rather than considering the two as distinct outcomes of a relationship. Thus, the research presented here might contribute to literature by providing empirical results on the relationship between relationship value, satisfaction and intention to renew.

2.4.6.4 Intention to Expand UIRs

As shown in the RM section of this literature review, intentions to expand is a well underexplored area. This is especially true for expansion intentions that go beyond the current relationship, meaning expanding the same kind of activities with a new

partner. In the context of UIR, the only research referring to intention expansion has been found in the work of Lee (2000). The author surveyed both university faculty members as well as firms collaborating with university. Based on the data of 671 faculty scientists and engineers as well as 140 firms, the authors show that more than 50% of the faculty members and more than 40% of the firms are likely to expand UIR activities in the future. Unfortunately, the data is only provided as descriptive statistics and not linked to other aspects of the survey, such as faculty and firm benefits, so that no results exist on the relationship between relationship value and intentions to expand. In addition, Lee (2000) does not specify whether the expansion refers to an expansion within or beyond the current relationship.

In summary, no research has been found that considers the causal relationship between value and expansion intentions. Considering the general increase of UIRs (Siegel et al., 2001; Poyago-Theotoky et al., 2002; Perkmann et al., 2011), research is required to test the relationship between value and expansion intentions in order to better understand how UIRs can strategically be fostered by developing UIRs activities beyond the current relationships.

Having outlined in the previous four section central research results on the four relationship value outcomes as defined in this research, the next section will specific results on the interrelationships between these outcomes in the context of UIR.

2.4.6.5 Interrelationships between Relationship (Value) Outcomes

In line with the limited research on satisfaction, WOM and especially on intention to renew and intention to expand in the UIR context, only few studies have been found which look at more than one of the four outcomes at a time.

Gray et al. (2001) confirm in their study on membership renewal in National Science Foundation sponsored centres that not only communication, but also satisfaction has a positive influence on membership renewal, the measure used by the authors to research commitment. In addition, Daniel et al. (2002) confirm the satisfaction-renewal link in a similar context. While the authors aim to develop a value assessment model, they actually measure satisfaction so that an effect of satisfaction on membership renewal is confirmed by the study. Rosendo-Rios (2013) also confirm satisfaction to positively impact intentions to renew in their UIR study in

Spain. While Plewa (2005) investigates both satisfaction as well as intention to renew in her study on Australian UIR, she does not conceptualise the two as interrelated in her model on key drivers of UIRs so that no results can be extracted from her study.

Vauterin et al. (2011) highlight a link between WOM and satisfaction in UIR. In their study on quality customer service in the higher education environment, the authors state that WOM effects the customer's expectations and thus has an influence on satisfaction, which refers to the results of a comparison between expected and perceived performance. According to Vauterin et al. (2011), WOM "may affect not only the decision-making process to invest in international higher education-related services, but also the selection of the university for the delivery of international higher education-related services" (p. 193). Thus, the authors see WOM as an antecedent of expectations (and satisfaction) and also of further behaviour. Compared to this, Perzon (2015) refers to WOM as a result of previous experiences and specifically refers to a firm's satisfaction with UIR. Thus, the author focuses on the effect of satisfaction on WOM, the dominant view also found in RM literature (e.g. Buttle, 1998; Kilian et al., 2008).

Philbin (2008) mentions a possible link between satisfaction and intention to renew. The author investigates UIRs from a process perspective and develops a conceptual model for the facilitation of UIR. Referring to the difficult implementation of the model, he refers to "increased customer (sponsor) satisfaction leading to repeat orders, i.e. achieving a level of sustainability for the collaboration" (p. 517). Using the wording "repeat order", Philbin (2008) thus refers to satisfaction potentially contributing to the intentions to renew a relationship. Coberly (2004), who focuses on faculty satisfaction in industry-university research centres, confirms empirically that faculty satisfaction has a positive impact on commitment and retention cognitions. In the study, Coberly (2004) focuses on the university side in UIR, rather than the firm side, as in most other research.

In summary, the previous five sections have presented an overview of research in the UIR context on the four relationship value outcomes used in this study, namely satisfaction, WOM, intention to renew, and intention to expand. In addition, linkages between the outcomes and relationship value, and between the outcomes itself have been highlighted. Overall, it can be summarised that some research on

the individual outcomes in the UIR context exist with limited research also highlighting selected interrelationships between the outcomes. The outcomes' linkage to relationship value, however, has been confirmed as an unexplored area in UIR, thus supporting the intention of this research to put value creation at the centre of the study.

2.4.7 Antecedents of Stakeholder and Relationship Value in UIRs

Trust and commitment have been identified in the literature review on RM as the two most central and most researched elements in RM research (Oly Ndubisi & Kok Wah, 2005; Heffernan et al., 2008). In line with the conceptualisation of trust and commitment as antecedents of value (e.g. Walter et al., 2000; Ryssel et al., 2004) rather than as outcomes of it (e.g. Morgan and Hunt, 1994; Ulaga & Eggert 2006; Berry & Terry, 2008), the following two sections will highlight studies on the ability of trust and commitment to drive value in UIRs.

2.4.7.1 Trust

The prominence of trust in RM literature can also partly been found in UIR literature. The fact that trust is seen as a key element of relationship success in UIRs (Santoro & Gopalakrishnan, 2001; Mora-Valentin et al., 2004; Brennenraedts et al., 2006) is primary based on its importance for knowledge sharing and transfer. For example, Ostergaard (2009, p. 197) highlights that “trust is a key issue in knowledge transfer, since the agent loses control of the information when it is shared and the agent also expects that the receiver reciprocates the favour in the future”. This loss of control might result in a loss of information advantage, a key element in knowledge markets (see section 2.4.2.1). Schartinger et al. (2002) provide further insights into the high relevance of trust in UIRs by characterising the UIR environment with a “high uncertainty of results, the involvement of highly sensitive knowledge, which is relevant for competition, and a low exclusive appropriability of research results by one partner (p. 306). In such an uncertain environment, trust becomes key and is a key aspect (future) investments depend on (Brennenraedts et al., 2006). Extending this view, Kaymaz and Eryiğit (2011) highlight that trust in UIRs is not only important for the current collaboration, but even more for ensuring that future collaboration will take place as well. Thus, trust supports the potential

switch from transactional to relational exchange (Lambe et al., 2001), fostering multiple relationship episodes.

While no research has explored the direct link between trust and relationship or stakeholder value in UIRs yet, many studies refer to the positive effects of trust for the relationship. Santoro and Bierly (2006) confirmed in their study on US companies involved in UIRs that trust allows open communication between partners which contributes significantly especially to the transfer of tacit knowledge with advantages, however, also made to the transfer of explicit knowledge. These results have also been confirmed in a study by Sherwood and Covin (2008). In line with these results, Santoro and Gopalakrishnan (2001) empirically proved that trust leads to a higher extent of technology transfer activities, whereby technology transfer activities included interaction time for developing and commercialising new technologies, joint decision making and personal exchanges, amongst others.

Plewa (2005) investigates trust as a central element in her study on key drivers in UIR. Her results of the generic model indicate that trust is positively influenced by organisational compatibility and itself positively impacts, integration, commitment, and satisfaction whereby the dyadic model only confirmed the last three links, not the effect of organisational compatibility on trust. Overall, Plewa (2005) summarises that trust can be considered as one of the most important drivers of UIR.

Rampersad (2008) researches trust in the context of UIR networks. In the study, she focuses on the network's effectiveness as the final outcome with trust being an antecedent of coordination and harmony. Rampersad (2008) confirms both that trust positively influences both coordination and harmony, thus providing further evidence for the positive impact of trust on UIR.

Lastly, Bruneel et al. (2010) look at trust from the point that it might help lowering barriers in UIR. In their empirical study on firms that collaborated in research projects of the Engineering and Physical Sciences Research Council in the UK, the authors confirmed that trust helps to reduce orientation-related barriers (understood as differences in incentives and orientation), as well as transaction-related barriers (understood as conflicts over intellectual property and the administration procedures of the university).

To summarise, trust is considered a cornerstone of UIR research and has been investigated from several perspectives. While trust has been confirmed to positively affect communication, integration, commitment, satisfaction, coordination and harmony, amongst others, and the positive impact of trust on UIRs is implied in most studies, no research has been found to empirically investigate the direct trust-value link in UIR.

2.4.7.2 Commitment

Commitment has been integrated in many studies on UIRs which focus on the relational perspective, rather than the transactional one. In this context, the problem of a conflict of commitment became prominent just before and in the years after the turn of the century, primarily put forward by Etzkowitz and Leydesdorff. For example, Leydesdorff and Etzkowitz (2003) refer to different roles and missions which have to be combined in a university setting, namely the commitment to societal challenges, the commitment to make economic contributions, as well as the commitment to the traditions and values of academia. Specifically referring to the challenges in UIRs, Etzkowitz and Leydesdorff (1997) refer to dual roles which faculty has to play – on the academic and industry side. Due to these changing conditions, Etzkowitz (1996) highlights that “as faculty roles expand, constraints on time and resources require faculty and administrators to set criteria for allocation of both time and commitment” (p. 266) which is in line with Campbell and Slaughter (1999) who include both resources as well as responsibilities which need to be distributed. As a result of this conflict of commitment and the required prioritization, it can be assumed that the decision of time, responsibility and commitment allocation has a major effect on the value creation process, and should thus be reflected in this research.

Further research on commitment in the UIR context targets different types of commitment among UIR stakeholders, dynamics of commitment, the delegation of decision power to increase commitment, and senior management commitment. Referring to the commitment to entrepreneurial activities in universities, Lam (2010) highlights that four types of researchers can be distinguished, namely Type I (“Traditionalists”), Type II (“Traditional Hybrids”), Type III (“Entrepreneurial Hybrids”), Type IV (“Entrepreneurial”). While traditionalists wish to keep academia

and business separate, entrepreneurial researchers see the high relevance of UIRs in order to apply and exploit the scientific value created. Next to these two extremes, traditional hybrids refer to those who believe in the separation of university and industry whilst seeing the benefits of UIRs for scientific purposes. Lastly, entrepreneurial hybrids see UIRs as legitimate and desirably whilst aiming to keep academic values as much as possible. Overall, the author proposes a classification of researchers based on their commitment towards UIRs, which also highlights the conflict of interest debate presented before. A similar commitment-based classification approach can be found in Hoyer and Pries (2009) who refer to high and low commitment commercialisers as an interesting field of research.

Lee (2011) refers to the dynamics of relationships and that organisational commitment may help to reduce opportunism and may lead to larger, potentially higher risk UIR projects in the future. Thus, the authors highlight the effect of commitment on expansion opportunities within a relationship. Lacetera (2009) looks at firms handing over projects to universities and dedicating decision power in order to facilitate commitment. The core idea is to leverage the motivation of faculty member for generating scientific results for the benefit of both parties. Rather than terminating a project, the university is assigned power of the firm's project in the hope that the academic researchers make the project a success, resulting in benefits for both the university (scientific value) as well as the industry partner (economic value). In other words, "delegation of decision power to an academic organization may function as a commitment device for the firm" (p. 568). Lastly, Barnes et al. (2002) highlight the importance of senior management commitment in order to prevent the loss of motivation and interest of the stakeholders in UIRs.

From the perspective of commitment driving UIR outcomes as defined in this research, the work of Plewa (2005) can be regarded as the most relevant. In her study, Plewa (2005) confirmed commitment not only having an influence on integration (a relationship characteristic), but also as a main driver of satisfaction and intention to renew as outcomes of UIR. Hereby it has to be noted that these results were both found to be significant not only in the author's generic model, but also in the dyadic one which consists of matching results of university and industry partners in Australian UIR.

Frasquet et al. (2012) integrates the concept of commitment in their study on collaborations between universities and industry. The authors operationalize commitment as a second-order construct with three first-order constructs, namely affective commitment, expectation of continuity as well as the willingness to invest, each being of reflective nature. With commitment being conceptualised as an outcome of trust and satisfaction, the authors confirmed that commitment positively influences collaboration, which is in line with the results of Palmatier et al. (2007) who reported positive effects of commitment on various outcomes, including collaboration. As a result, the authors conclude that in UIRs “greater level of commitment must also be assumed to achieve greater collaboration” (Frasquet et al., 2012, p. 96).

While many studies refers to the positive effects of commitment on a relationship, only one study has been found that clearly states the direct link between commitment and value creation in UIR. In her qualitative study, Plewa et al. (2005) summarise the findings of their interviews and present one interviewee statement with respect to commitment by stating “In consensus with the RM and alliance literature, interviewees described commitment as closely associated with value creation: ‘What I can say of commitment is you need it for it to succeed. So, if you want that link between the university and the organization to succeed, both parties need to be committed’ (U#4)” (Plewa et al., 2005, p. 444).

Overall, scholars investigated commitment in UIRs from different perspectives and in different settings, nearly all confirming a positive contribution of commitment to the success of a relationship (either direct or indirect), thus confirming the results of the RM literature. However, with respect to the direct link between commitment and the value created in UIR, only Plewa et al. (2005) has been found to at least refer to “commitment as closely associated with value creation” (p. 444), based on her qualitative study. Thus, a lack of quantitative evidence that highlights the impact of commitment on stakeholder or relationship value creation in UIRs can be reported.

Having separately discussed research on trust and commitment in the context of UIRs, the following chapter will present UIR research results linking the two relationship characteristics.

2.4.7.3 Interrelationships between Trust and Commitment in UIRs

In line with the many RM studies researching both trust and commitment, several scholars in the UIR context have empirically investigated the relationship between the two relationship characteristics. In these studies, trust is partly conceptualised as an antecedent of commitment, and partly as an outcome of commitment, following different conceptualisations in the general RM literature. For example, Rampersad et al. (2010) provide results on the effect of commitment on trust as part of their study on R&D networks in the biotechnology and nanotechnology sector in Australia. Based on 124 responses to their survey, they confirm commitment to positively influence trust. Plewa (2005), also investigating UIRs in Australia, conceptualises trust as an antecedent of commitment (thus, different to Rampersad et al., 2010). Her results indicate that trust positively influences commitment, confirmed not only in her generic model based on 207 responses, but also in her dyadic model which takes into account matching data of 62 UIRs. Frasquet et al. (2012) use data of 322 companies collaborating in education-related activities with a university in order to understand how collaboration can be facilitated. While trust is expected to make a positive impact on commitment in their model, this hypothesis had to be rejected based on the data given. The trust-commitment link can also be observed in the study of Mora-Valentin et al. (2004) on cooperative agreements between research organisations and firms in Spain. As the relationship between trust and commitment, however, was not central in this study, only correlation coefficients are presented in the paper so that a strong link between the two constructs can be confirmed, but no evidence is given whether trust should be conceptualised as an antecedent or outcome of commitment.

In addition to the described empirical investigations of the trust-commitment link in UIR, Santoro & Bierly (2006) refer to higher trust of a firm resulting in a higher commitment of individuals and a more intense transfer process. Unfortunately, not empirical evidence on this statement is provided.

To summarise, similar to RM studies in other sectors, UIR research provides different conceptualisations and empirical results on the trust-commitment link. Based on the dominant conceptualisation of trust as an antecedent of commitment in the RM literature, it seems reasonable to follow this approach in the UIR context.

2.4.8 Section Summary

UIRs are not a new phenomenon (Perkmann et al., 2013), but raised considerable attention in theory and practice over the past decades. This chapter presented the evolution of UIRs, theoretical perspectives and concepts, as well as a characterisation of the term, leading to the development of a definition used in this study. Next to this foundational work, each element of the conceptual framework developed by the integration of RM and ST in the previous two sections (2.2 and 2.3) has been discussed in the UIR context. In summary, various UIR studies have been found on the relationship between trust and commitment and relationship outcomes, including relationship satisfaction, WOM and intention to renew. The linkage of relationship characteristics and value, however, can be considered as an unexplored area in UIR. In addition, the linkage between (stakeholder and relationship) value and relationship outcomes represents another lack in UIR research. Together with missing research on the interdependences between stakeholder value constructs, all three knowledge gaps proposed in chapter 1 of this research have been confirmed by the extensive literature review undertaken.

The following section will summarise and integrate the results of the literature reviews on RM, ST and UIRs and present a conceptual model integrating the three research streams. The model builds upon the conceptual framework as presented in section 2.2.7 and 2.3.7.

2.5 Conceptual Model

The literature review results presented in this chapter allow the development of a conceptual model in accordance with the three key research questions put forward in this study, namely:

1. Which are the key relationship characteristics driving stakeholder value creation in UIRs?
2. How does the value created for one stakeholder affect the value created for other stakeholders, and vice versa?
3. Which are the key drivers of overall relationship value and further relationship outcomes, as perceived by academics?

First, trust and commitment have been identified as key drivers of relationship success and can thus also be expected to contribute to stakeholder value creation. Hereby, it seems justifiable to propose a positive effect of trust and commitment only on those stakeholders who are directly involved in the UIR (direct stakeholders). By implication, indirect stakeholders, who are only affected by the relationship, in this case students and society, would not be impacted directly by trust and commitment, but might be influenced through the direct stakeholders. With respect to the linkage between trust and commitment, different conceptualisations have been found, with trust positively influencing commitment being the dominant one. This research will follow the dominant view and thus consider trust as an antecedent of relationship commitment.

Second, six key UIR stakeholders have been identified in the literature review, namely (1) the university and (2) the business partner as organisations, (3) the academic staff and (4) the business staff as individuals involved in UIRs, as well as (5) students and (6) society as indirect stakeholders being affected by the relationship. With respect to the interdependences between stakeholder values, society can be regarded as a rather broad stakeholder group whose value can be expected to be affected by the value generated for the other five stakeholders. For example, the higher the value for the business involved in the UIR, the more likely is a commercialisation of research results in form of products and services, which in turn might contribute to society in terms of increased living standards or job creation. In addition, literature provides indications to position the university as a central influencer of the value of other stakeholders. Research on commitment in UIRs refers to a conflict resulting from the dual roles which academics have to play – the science or academic-oriented as well as the business-oriented role (Etzkowitz & Leydesdorff, 1997). As a result of this conflict of commitment, resource investments (e.g. time, effort, money) have to be prioritised (Etzkowitz, 1996; Campbell & Slaughter, 1999). This prioritisation of resource investments can be influenced by the academic researcher itself (e.g. as part of the academic freedom), but also by the university which might use incentive programmes or other approaches to foster UIRs (Davey et al., 2011). Following this thinking, Lacetera (2009) refers to companies handing over decision power to universities in order to foster their motivation in UIRs. Ultimately, this strategy is intended to make a positive impact on the value

created in the relationship, and thus supports the view that a university or its research staff can be considered a kind of a “gatekeeper” with respect to resource allocation. Considering that the university, not the individual academic, is the contractor in UIRs and has the ultimate power to allocate resources (e.g. reducing teaching commitment), it seems justifiable to award a central role to the university, not the individual academic. Thus, in addition to the influence of university value on society value, as indicated above, the value created for the university will be conceptualised as an antecedent of the value created for the business partner, business staff, academic staff as well as students.

Third, next to overall relationship value, four further relationship outcomes have been identified in literature, namely relationship satisfaction, WOM, intention to renew, and intention to expand. With the concept of value taking a central role in this research, overall relationship will be conceptualised as the mediator between stakeholder values and the four additional relationship outcomes. Following RM literature, overall relationship value is expected not only to be influenced by the six stakeholder value constructs, but also by trust and commitment as relationship characteristics.

With respect to the relationship between the stakeholder value constructs and the overall relationship value construct, it has to be highlighted that the conceptual model considers the former as antecedents of the latter, as subjectively perceived by the individual academic. In other words, the model refers to overall relationship value as the total value perceived by an academic. This value is expected to be positively influenced by the value generated for the different stakeholders. However, it needs to be taken into account that (parts of the) stakeholder values generated might not influence the academics value perception of the entire relationship as this value is not important for the academic. As an example, a new technology might contribute to the reputation of an academic, to business in terms of increased profits and to society with respect to the technology’s ability to increase living standards. The academic, however, might only take the first and last benefit into account when assessing the value of the entire relationship as business profits do not matter for the academic. Thus, value generated for a specific stakeholder might be identified and recognised by the individual academic, however might be deemed

as unimportant from the academic's perspective and as such would not increase the overall relationship value as perceived by the academic.

Regarding the interdependences between the four outcomes of overall relationship value, past RM research indicates a positive relationship between satisfaction and WOM, between satisfaction and intentions to renew, as well as between intentions to renew and WOM. As the intentions to expand can be considered a hardly explored area, hypotheses with respect to this construct had to be derived from research investigating similar constructs. In this research, the construct intentions to expand is expected to be impacted by relationship satisfaction and by intentions to renew an existing relationship while the construct itself is expected to positively influence WOM.

The following table summarises the proposed causal relationships between the constructs of this research, as indicated in the above text.

| Independent variable | Dependent variable | Predicted relationship |
|-----------------------------|----------------------------|-------------------------------|
| Trust | Commitment | + |
| Trust | Value for Academic Staff | + |
| Trust | Value for Business Staff | + |
| Trust | Value for University | + |
| Trust | Value for Business | + |
| Trust | Overall Rel. Value | + |
| Commitment | Value for Academic Staff | + |
| Commitment | Value for Business Staff | + |
| Commitment | Value for University | + |
| Commitment | Value for Business | + |
| Commitment | Overall Relationship Value | + |
| Value for University | Value for Academic Staff | + |
| Value for University | Value for Business Staff | + |
| Value for University | Value for Business | + |
| Value for University | Value for Students | + |
| Value for Academic Staff | Value for Society | + |
| Value for Business Staff | Value for Society | + |
| Value for University | Value for Society | + |
| Value for Business | Value for Society | + |
| Value for Students | Value for Society | + |
| Value for Academic Staff | Overall Relationship Value | + |
| Value for Business Staff | Overall Relationship Value | + |
| Value for Society | Overall Relationship Value | + |
| Value for Business | Overall Relationship Value | + |
| Value for Students | Overall Relationship Value | + |
| Value for University | Overall Relationship Value | + |
| Overall Relationship Value | Relationship Satisfaction | + |
| Overall Relationship Value | WOM | + |
| Overall Relationship Value | Intention to Renew | + |

| | | |
|----------------------------|---------------------|---|
| Overall Relationship Value | Intention to Expand | + |
| Relationship Satisfaction | WOM | + |
| Relationship Satisfaction | Intention to Renew | + |
| Relationship Satisfaction | Intention to Expand | + |
| Intention to Renew | WOM | + |
| Intention to Renew | Intention to Expand | + |
| Intention to Expand | WOM | + |

Table 9: Predicted Relationships Between Model Variables

The subsequent figure presents the conceptual model, including relationship characteristics, stakeholder values and relationship outcomes, in graphical terms.

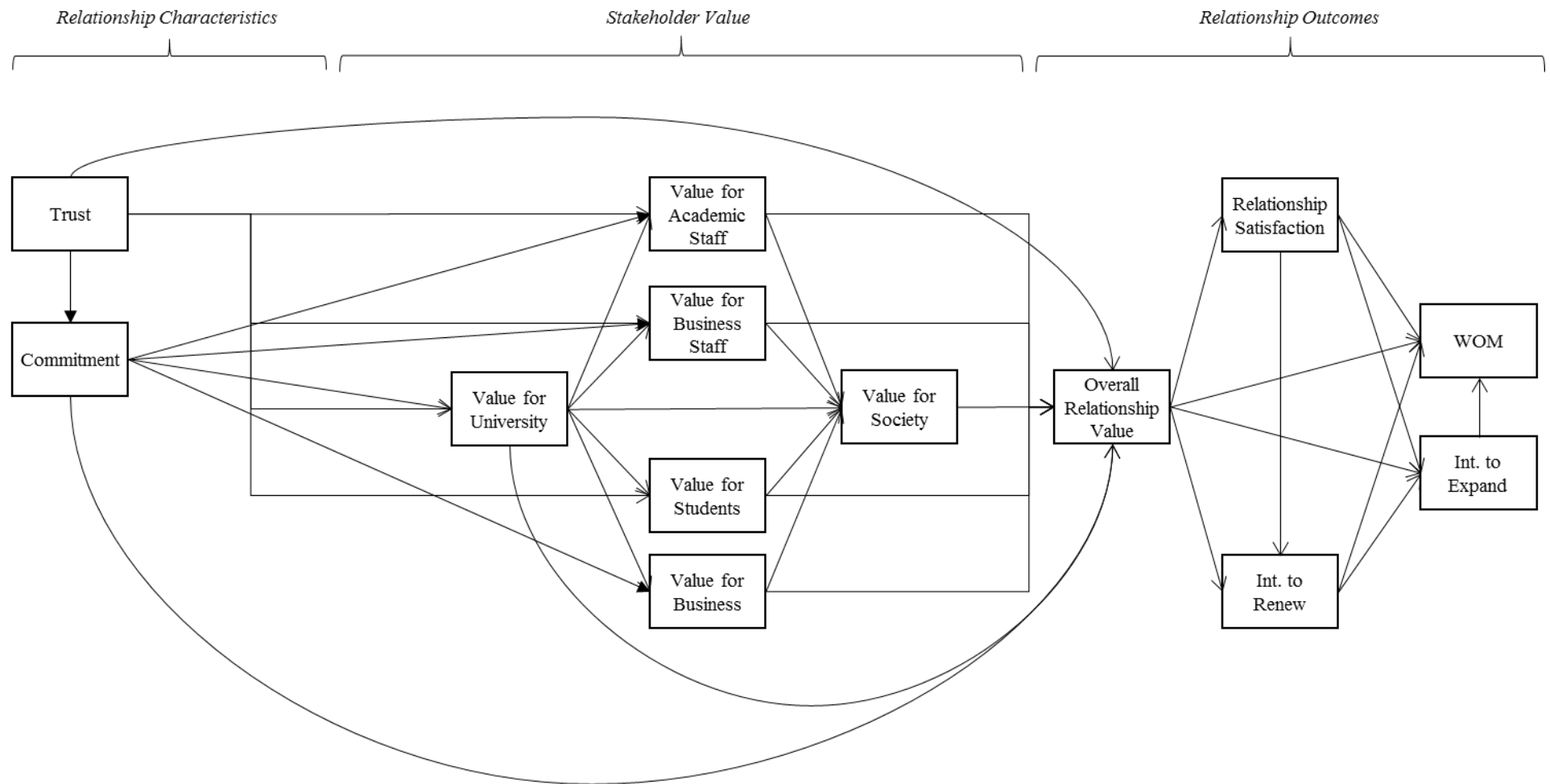


Figure 6: Conceptual Model

2.6 Chapter Summary

This chapter presented a review on the three main literature streams of this research, namely RM, ST and UIR. Each literature stream has been introduced through a presentation of the evolution as well as the theoretical perspectives on the field. In addition, a definition for each term (RM, ST and UIR) has been developed for the specific context of this research. With the ultimate goal being to develop a conceptual model for value creation in UIRs from a RM and ST perspective, the core objective of the literature review was to identify and link key constructs of the UIR value creation process. Thus, the literature streams were introduced one after another whereby the results of the already presented stream(s) is/are discussed in and linked to the following one(s), thus successively resulting in an integration of RM, ST and UIR literature. More precisely, the RM literature review identified the antecedents and outcomes of relationship value while the ST literature review presented different stakeholder approaches and integrated stakeholder values between relationship characteristics and relationship value in the conceptual framework. Lastly, the UIR literature review investigated the conceptual RM and ST framework from a UIR perspective and integrated the UIR specific stakeholders.

The literature review has shown that value creation is a key component in all three research streams. Against this background, most research only tackles the topic from a conceptual basis or focuses only on individual stakeholder value or relationship value, leaving out the integration of the two, thus justifying the integration of RM and ST in this research.

Following the review of the three literature streams, section 2.5 summarises the causal relationships between the identified constructs. Based on these relationships, the rather general conceptual framework has been developed in a more precise conceptual model of value creation in UIR.

To conclude, this chapter merged RM, ST and UIRs and presented a conceptual model for value creation in UIRs from a stakeholder and relationship perspective. The following chapter will introduce the overall research design and outline the implementation of a qualitative research step which aims to refine the conceptual model before a quantitative study is conducted to empirically test the model.

3. QUALITATIVE RESEARCH

3.1 Chapter Introduction

Relationships between universities and business organisations are not a new phenomenon, however, the academic literature on UIRs can be considered as rather sparse. This is especially true with respect to the investigation of stakeholder and relationship value creation in this context, as highlighted in the literature review presented before. Given the novelty of this research, it was deemed important to further investigate UIR value creation through a qualitative pre-study and to refine the conceptual model, if needed, based on the results, before testing the conceptual model in a large-scale quantitative study.

Following the examination and integration of the three parent theories in the previous chapter, this chapter presents the overall research design as well as the methodology and findings of the qualitative research step. As this qualitative research step can be best characterised as a small-scale pre-study, both the research design as well as the results are presented in the same chapter. The chapter starts with a discussion of the general research paradigm as well as the multi-method approach taken in this study, thus setting the stage for both the pre-study (qualitative) as well as the main study (quantitative) of this research. Following this, the application of interviews in the pre-study is presented and justified in detail, including the selection of interviewees, the interviewing procedure and the data analysis. Hereafter, the findings of the thematic analysis performed using QSR NVivo 8 are discussed, structured in three different sections: (1) RM, trust and commitment in UIRs, (2) expectations in UIRs, and (3) stakeholder benefits and sacrifices in UIRs. Based on the findings of the study, the conceptual model is refined and hypotheses are developed to be validated by the following quantitative research step.

3.2 Overall Research Design

Before starting with the discussion of research paradigms, research designs, research methods, and research methodologies, the before mentioned terms need to be clarified due to the inconsistent usage in literature. Mertens (1998) and Wellington (2000) define a research paradigm as a way in which one looks at the world.

This worldview and the underlying “basic set of beliefs” (Guba, 1990, p. 17) in turn guide the thinking and acting of researchers. Thus, researchers need to recognise the impact of their worldview (working paradigm) on the research process and its results, and disclose it to the scientific community to contribute to the understanding of the research (Mertens 1998). According to Burns and Bush (2003), the term research design can be understood as a plan or blueprint of how a research project is to be conducted. In other words, the research design should provide the best or most suitable concept to address the underlying research question, which is in line with Durrheim’s (2006) statement that the research design acts as a bridge between the research question and execution. Research methods, on the other hand, refer to the tools and techniques used to conduct the research, e.g. for sampling, data collection and data analysis (Polit & Beck 2006). Lastly Remenyi (1998) declares that a research methodology is the procedural framework used to conduct the research. Linking research design, methodology and methods, Mouton (2001) states that the research methodology is the systematic, methodical and accurate execution of the research design with various methods being used to perform different tasks.

Following Durrheim’s (2006) view that the research design acts as the bridge between the research question(s) and execution, it is important to recall the main objective and research questions of this study. This research aims to investigate value creation in UIRs by taking a stakeholder and relationship value perspective, with the following three research questions taking centre stage:

1. Which are the key relationship characteristics driving stakeholder value creation in UIRs?
2. How does the value created for one stakeholder affect the value created for other stakeholders, and vice versa?
3. Which are the key drivers of overall relationship value and further relationship outcomes, as perceived by academics?

These three research questions have thus guided the development of the research design, the selection of research methods as well as the research methodology of this study.

The next section discusses the research paradigm chosen followed by a section presenting the research methods used within this research.

3.2.1 Research Paradigm

The existence of different research paradigms has led to an ongoing discussion about the application of qualitative and quantitative research methods. According to Alastalo's (2009) methodological history, quantitative methods and the positivism / objectivism paradigm have dominated until the early 1970s before the "paradigm war" started and qualitative methods and the interpretivism / constructivism paradigm emerged (Bryman, 2009).

While positivism and constructivism differ in terms of ontology, epistemology and methodology (Guba & Lincoln, 1994), and positivism can be seen as the basis of quantitative approaches, and interpretivism as the basis of qualitative approaches (Sale et al., 2002), the two views should not be seen as dichotomous. Rather they should be considered as a continuum on which both qualitative and quantitative approaches can be placed, highlighted by Sale et al. (2002), referring to Howe (1992), by stating "both quantitative and qualitative researchers should embrace positivism coloured by a certain degree of interpretivism, an adjustment which [...] is made possible by the critical social research model [...] which eschews the positivist-interpretivist split in favour of compatibility" (Sale et al., 2002, p. 47). In line with this, in the 1990s, the pragmatism paradigm and mixed-method research began breaking the dichotomy by combining qualitative and quantitative research. Pragmatism refers to a philosophical standpoint which focuses on what has to be done to answer research questions instead of following the either-or choice between qualitative and quantitative research (Teddlie & Tashakkori, 2003). With this importance given to the research question, pragmatism puts the question to be answered prior to the methods used and the underlying paradigm (Punch, 2009).

In line with the pragmatism paradigm's call for using the most appropriate method(s) to answer the research questions, a mixed-method approach integrating qualitative and quantitative research methods was used in this study. Opposed to mono-method research (Gorard & Taylor, 2004) and multi-method research integrating two or more methods of either quantitative or qualitative nature (Teddlie & Tashakkori 2003), mixed-method research refers to empirical research using qualitative and quantitative data (Punch, 2009), and methods whose parallel or sequential (Teddlie & Tashakkori, 2003) combination enables to "achieve complementary

strengths and non-overlapping weaknesses” (Johnson & Onwuegbuzie, 2004, p. 18).

The concept of mixed-method research has gained significant resistance after its introduction, however, today various books (e.g. Brewer & Hunter, 2006; Tashakkori & Teddlie, 2003; Axinn & Pearce, 2006; Creswell & Clark, 2007) and one journal (*Journal of Mixed Methods Research*) are solely dedicated to the topic with many other books on research design and methods containing separate chapters on multi- and mixed-method research (Punch, 2009; Bamberger et al., 2006; Karnovsky & Lebed, 2010). One reason for this resistance and the confusion in this area is the vast number of terms used and types existing. For example, further terms for the same or similar concepts in this area are “multi-method” (Brewer & Hunter 2006), “mixed-method” (Tashakkori & Teddlie, 2003), “combined method” (Mackey & Gass 2005), “blended method” (Blankenship, 2010), “multitrait-multi-method” (Schmitt, 1978; Campbell & Fiske, 1959), “methodological triangulation” (Burns, Grove, 2005), “multi-methodological research” (Kreps, 2002) and “mixed-model research” (Teddlie & Tashakkori, 2003). While various types of mixed-method designs have been described in literature (Tashakkori & Teddlie, 2003), increasing the complexity of the topic, Creswell et al.’s (2007, p. 55–88) four-way classification contributes to the simplification by separating triangulation design, embedded design, explanatory design and exploratory design. First, triangulation design refers to a one-phase design which gains complementary qualitative and quantitative data. Generally, the separately collected and analysed data is merged with an equal weighting given to each data, thus providing the opportunity to look at one topic from two different perspectives. Second, embedded design brings together two data sets of which one plays the supportive and one the primary role. The idea is to embed questions of one type (e.g. qualitative) into the design of another (e.g. quantitative) since both types are required to answer the research questions. Here it has to be noted that the data sets can be collected either at the same time or sequentially. Third, explanatory design, as understood in Creswell et al.’s (2007) four-way classification, combines an initial quantitative research phase with a subsequent qualitative one. This structure, for example, allows researchers to explain significant or non-significant quantitative results by taking a closer look through qualitative research methods. Lastly, exploratory design, as referred to by

the authors with respect to mixed method approaches, involves an initial qualitative step followed by a quantitative one, thus representing the reverse structure of the explanatory design. This kind of design is optimal for quantitative research projects which lack a solid foundation of the research area to be investigated.

This research makes use of Creswell et al.'s (2007) exploratory design approach towards mixed-method research with qualitative interviews used prior to the application of a quantitative web-based questionnaire. The justification for selecting this approach is integrated in the following discussion on research methods which is structured and guided by the different research types required, namely exploratory research, descriptive research and causal/explanatory research (McGivern 2005).

3.2.2 Research Methods

Exploratory research is used to gain insight into phenomena of which the researcher has no or limited experience and/or knowledge (Teddle & Tashakkori, 2009). With respect to multi-step research approaches, exploratory research allows to build a solid foundation for the subsequent step(s) which might be used to provide evidence of the findings (Zikmund, 2003). The rationale of integrating exploratory research in this study's design is based on the novel and complex nature of the research. While both RM and UIR research have significantly increased, especially over the last two to three decades, and ST can be seen as a central approach in organisational management, empirical research integrating the three streams and looking at value creation are still sparse. As a result, and as shown in the literature review, little is known about which relationship characteristics drive stakeholder and relationship value creation in UIRs. In addition, the concept of value is multi-dimensional (Grisaffe & Kumar, 1998) and dynamic as it is perceived subjectively (Kortge & Okonkwo, 1993) and relative to competition (Anderson & Narus, 1999) with the investigation of value creation in this research being even more complex due to the multi-stakeholder approach taken, with different stakeholder values influencing the academic's overall relationship value perception. Thus, it was deemed appropriate to use exploratory research to deepen the understanding and contribute to the generation of theory (Gorard & Taylor 2004).

The exploratory research in this study is conducted by means of qualitative research methods. According to Wilson (2003, p. 93) qualitative research refers to “an unstructured research approach with a small number of carefully selected individuals to produce non-quantifiable insights into behaviour, motivations and attitudes”. Wilson’s (2003) focus on unstructured approaches, however, limits the definition and is not agreed on in this research. Rather, the existence of semi-structured and structured approaches is acknowledged (Bryman, 2006; Fontana & Frey, 2000). With respect to the specific method applied in this study, semi-structured in-depth interviews with academics and knowledge and technology transfer (KTT) professionals from England were conducted.

Explanatory or causal research refers to attempts to determine cause-and-effect relationships between two or more variables (Singh, 2007). The application of explanatory research in this study was justified by the fact that primary exploratory and descriptive research has been done with respect to value and its creation in UIRs, resulting in normative and conceptual findings as outlined in the literature review. For example, Plewa, who can be considered as one of the key scholars in UIR research from a RM perspective, investigates with her colleagues value creation in UIRs and performs qualitative interviews in order to identify “value creating factors” and to develop a conceptual framework on RM in UIRs (Plewa et al., 2005). Plewa’s (2005) PhD dissertation, for which the framework was created, however, does not integrate value as an outcome, but focuses on causal research integrating intentions to renew and satisfaction as relationship outcomes. With much more research existing that does not investigate causal relationships between constructs in UIR value creation, the execution of empirical, explanatory research is seen as an opportunity to advance our understanding of UIRs from a stakeholder and relationship value perspective. Hence, explanatory research using path analysis based on Structural Equation Modelling (SEM) principles will be conducted to test the hypotheses developed. A key reason for applying structural equation modelling (SEM) lies in its power to evaluate entire models (Steenkamp & Baumgartner, 2000), thus providing an opportunity to further investigate the conceptual model build in this study.

Lastly, descriptive research seeks to portray an accurate profile of phenomena (Robson, 2002) by using descriptive statistics, such as means, medians, percentages, histograms, and frequencies (Gliner et al., 2009). Within this study, descriptive research will be used to summarize the respondents' characteristics of the quantitative survey. This procedure is justified as a clear picture of the demographic data is necessary to accurately interpret the findings.

Explanatory and descriptive research will be applied in this research using a quantitative web-based questionnaire among academics in England. Since this chapter only intends to provide a general overview of the overall research design as well as the qualitative research step, the quantitative research method and its application will be discussed in detail in chapter 5.

To summarise, this research follows the pragmatism paradigm and integrates both qualitative and quantitative research methods (mixed-method research). Qualitative semi-structured in-depth interviews will be conducted to further explore the topic and refine the conceptual model (exploratory research), which has been developed based on current literature. Quantitative research in the form of a web-based questionnaire will then be used to empirically test the developed model and its related hypotheses (explanatory research).

The following section details the research design of the exploratory research step – considered as a pre-study of the subsequent explanatory step.

3.3 Qualitative Research Design

In line with the overall research design presented in the previous section, this section presents the research design of the qualitative research step. Following the justification for using semi-structured interviews as the research method, sampling, data collection and preparation, as well as data analysis methods are explained, with limitations resulting from the applied methods concluding the section.

3.3.1 Qualitative Research Method

As indicated in section 3.2.2, the aim of the exploratory research step is twofold: First, it aims to address the limited research on relationship characteristics driving stakeholder and relationship value creation in UIR. More specifically, the research

intends to validate that trust and commitment are key and no other main relationship characteristic is left out. Second, explanatory research in this study aims to shed light on the different stakeholder values which influence the academic's perception of the overall value of the relationship, thus addressing the lack of research integrating stakeholder and relationship value.

While various qualitative research methods such as observations, focus groups, and case studies exist, this research makes use of semi-structured in-depth interviews. Malhotra (2007, p. 126) defines an in-depth interview as "an unstructured, direct, personal interview in which a single respondent is probed by an experienced interviewer to uncover underlying motivations, beliefs, attitudes and feelings on a topic". In line with the argumentation that Wilson (2003) limits his definition of qualitative research too much by referring to it as an "unstructured research approach" (p. 93), Malhotra's (2007) definition can be criticised as well. Malhotra (2007) also focuses just on unstructured interview approaches, and leaves out the possibility of semi-structured and structured ones (Corbetta, 2003; Saunders, 2005), two approaches widely discussed in literature.

Various reasons for using interviews in research are mentioned in literature. First, interviews were found to have a high return rate (Miller 1991). Reasoning for this higher return rate is given by researchers that are often skilled to motivate people to participate (Cozby, 2004) and that some respondents are more comfortable in speaking than writing (Mackey & Gass, 2005). The ability to motivate people to take part in the interviewing process is seen as crucial in this research since it allows integrating those who are expected to best enhance our understanding of the research topic. Second, interviews allow the clarification of questions if respondents have problems in understanding them (Cozby, 2004). Vice versa, answers given by interviewees being "vague, incomplete, off-topic, or not specific enough" (Mackey & Gass 2005, p. 173) can be further detailed to contribute to the validity of the findings (Cozby, 2004). Since value creation in UIR from a RM and ST perspective can have many different facets, e.g. in terms of what the interviewee understands as value, the opportunity to directly verify the correct understanding of questions and answers is seen as highly beneficial for this research. Lastly and most importantly, interviews are seen as a valuable way of developing a comprehensive list

of ideas about phenomena of complex nature (Fern, 1982). With value being a complex concept which has not been deeply investigated at the intersection of RM, ST and UIRs, the ability to interact with the person interviewed and to jointly explore the topic in detail shows a clear advantage of the interviewing method. In line with this, some scholars refer to interviews as an optimal method when the information expected varies significantly between the participants (Veal, 2005). Previous research conducted by Plewa et al. (2005) found not only differences between the value dimensions of university and industry, but also between different interviewees from the same side, university or business. Taking these results as a starting point and aiming to further explore the value concept in UIRs, significantly varying stakeholder values and value drivers are expected to be found, supporting the usage of qualitative interviews in this first empirical research step.

Some of the main disadvantages related to qualitative interviews include high time efforts, high costs and interviewer bias. First, personal interviews are rather time-consuming (Cozby, 2004), because opportunities to obtain economies of scale are small. While the development of an interview guide helps to reduce the overall preparation time, the data collection phase does not allow making use of economies of scale since each interview needs to be conducted separately. The same applies to the analysis of the interviews. Second, due to the time exposure associated with the interview and potential efforts to be made to meet in person at a specific point (travel costs), the data collection process of interviews is rather expensive (Miller, 1991). Lastly, literature refers to a large variety of interviewer effects (Chisnall, 1997) or interviewer biases which have to be taken into account. The term interviewer bias refers to the fact that the interaction between interviewer and interviewee might result in intentional or unintentional influence by the interviewer on the respondent's answers (Cozby, 2004).

While qualitative in-depth interviews occupy a variety of disadvantages, the usage in this study is justified based on the following two facts. First, the advantages and benefits of qualitative interviews presented above are expected to provide highly valuable results, and suit the objective to further explore the topic of value creation in UIRs. The disadvantages, on the other hand, are primarily affecting monetary costs and efforts for conducting the research rather than negatively affecting the research's quality. Since this research considers research quality as the most

important factor in research design development, qualitative interviews are seen as the most appropriate method to be used for this first exploratory research step.

With respect to the forms an interview can take, three different ones are generally differentiated in literature, namely structured, unstructured and semi-structured interviews (Corbetta, 2003). Structured interviews follow a predetermined and standardized set of questions in each interview not aiming to go into detail (Saunders, 2005). In unstructured interviews, on the contrary, researchers often only have one or some starting question(s) to initiate the interview while the development of the interview is open to go into any direction (Punch, 2009). Semi-structured interviews are based between these two extreme interviewing forms. Rather than being completely or almost not at all standardized, interview guides with specific topics to be covered are prepared for semi-structured interviews, giving direction but also leaving enough space to digress and explore new information (Mackey & Gass, 2005).

This research uses semi-structured interviews to take advantage of the strengths of the two extreme interviewing forms. On one hand, interviewees needed to be free to move into new directions so that new ideas can come up and can be integrated in the study, thus contributing to the exploratory nature of this first research step. On the other hand, the qualitative research step is intended to deepen the understanding of specific aspects derived from the literature review, thus requiring some structure.

3.3.2 Sampling

When using an exploratory research approach, the selection of cases / interviews is as important as in hypothesis-testing research. The qualitative step of this research makes use of purposive sampling, a specific type of non-probability sampling. As opposed to probability sampling, non-probability sampling does not aim to statistically represent the target population (Pope & Mays, 2006). In line with this, purposive sampling or judgemental sampling refers to a selection based on the cases' / interviewees' expected contribution to answer the research question, also called information-oriented selection (Saunders, 2005). Within this research, qualitative interviews are chosen to validate, and if necessary to refine, the literature-based conceptual model which will afterwards be tested empirically by a quantitative web-based questionnaire. The interviews thus play a significant role in answering the

overall research questions as they will help to focus on those aspects being central in UIR value creation.

With respect to the selection of interviewees for qualitative research, various approaches can be identified. The following table provides the 16 sampling strategies outlined by Miles and Huberman (1994, p. 28).

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Table 10: Qualitative Sampling Strategies (Miles & Huberman, 1994, p. 28)

This research integrates five of the above mentioned 16 strategies, namely maximum variation, intensity, criterion, snowball/chain and combination/mixed. These five strategies are discussed next, based on the descriptions provided by Miles & Huberman (1994).

First, the maximum variation strategy was chosen to identify those relationship factors leading to (very) successful and unsuccessful projects. Since academics only

have experience in a limited number of relationships, interviews with KTT professionals, as intermediaries (Hassink, 1997) in a large number of relationships, are conducted to identify those relationships and the factors leading to extreme results. In addition, KTT professionals overlooking a wide range of projects are expected to contribute a more diverse set of relationship benefits and sacrifices, especially since they are mediating between a wide range of stakeholders (e.g. the university, the academic staff, but also the business). While this procedure can be criticised due to the KTT professional's indirect involvement in the relationship, it benefits this study by providing a further perspective, triangulating the results of the literature and the academics themselves.

Second, the intensity strategy was applied to examine relationships in detail, providing richer information on relationship factors and benefits. Since relationships and the benefits gained and sacrifices made have been identified as complex, multi-faceted constructs (Grisaffe & Kumar, 1998), an intense discussion of these constructs is seen as crucial to refine the conceptual model developed.

Third, to ensure high quality results, the criterion strategy referring to a strategy that includes only those cases meeting specific requirements is applied. Created in line with the overall research goals and the goals of the qualitative research step, namely deepening the understanding of value creation in UIRs, three interviewee selection criteria are considered: To begin with, interviewees have to be formally related to a England-based university or research institution to ensure the comparability of results. In addition, a minimum of five years of experience working with industry is required to ensure that only experienced individuals were interviewed. Finally, academics need to have worked with a minimum of three different industry partners within their career whereby each relationship should have lasted at least one year, preferably longer. With respect to KTT professionals, the minimum number of industry partners they have worked with, for one year or longer, is set at ten. This criterion was altered, compared to the respective academic criterion, to ensure that the qualitative research step benefits from a wide range of experiences of the KTT professionals.

Fourth, the snowball sampling strategy is used to enlarge the number of potential participants meeting the above mentioned criteria. Snowball sampling refers to

the process in which an initial set of already recruited contacts are used to identify further potential participants (Bryman & Bell, 2007).

Fifth, the combination or mixed strategy, aiming to triangulate results, provide flexibility and/or meet multiple interests and needs, was applied. As the four above discussed strategies show, this research combines different strategies to contribute as best as possible to the answer of the research question.

Based on the five sampling strategies discussed above, potential interviewees were identified and contacted. To identify potential interviewees, own contacts were approached and websites of various institutions in the West Midlands, East Midlands, London and South East of England were reviewed. The focus on these regions was motivated by a potential reduction of travel costs and time as it was preferred to contact all interviews in person. All potential interviewees were contacted via email with a clear indication of the criteria to meet to participate in the study (criterion strategy). Following a positive response on the interview request, a Participant Information Sheet as well as an Informed Consent Form was sent to the interviewees to better inform them about the research focus as well as their rights. In the same email, the interviewee was asked to suggest potential time frames for the interview and whether or not they can recommend further potential interviewees for the study (snowball sampling strategy). Receiving a large number of positive responses, the researcher had to pick and choose the participants based on their expected contribution to the study whilst taking into account the travel to be undertaken.

The following table summarises key characteristics of the interviewees, including both academics as well as KTT professionals.

| # | Type | Title | Discipline focus | Geographical area |
|----|----------|-----------|---|--------------------|
| I1 | KTT | | Engineering | Yorkshire |
| I2 | Academic | Professor | Chemical Engineering | West Midlands |
| I3 | KTT | | Across disciplines | South East England |
| I4 | Academic | Professor | Digital Media Technology | West Midlands |
| I5 | Academic | Professor | Civil Engineering | West Midlands |
| I6 | Academic | Professor | Metallurgy and Materials | West Midlands |
| I7 | Academic | Professor | Electronic, Electrical and Computer Engineering | West Midlands |
| I8 | KTT | | Across disciplines | East Midlands |
| I9 | KTT | | Across disciplines | West Midlands |

Table 11: Characteristics of Interviewees

Having outlined sampling issues and having presented the final sample, the following section will detail how data was collected and prepared.

3.3.3 Data Collection and Preparation

In order to gain a better understanding of the research field, semi-structured interviews were conducted with academics and KTT professionals who are affiliated with English universities. All interviews took place in person in May 2012. Using an interview guide prepared prior to the interview (see Appendix 2), the researcher drove from university to university interviewing the academics and KTT professionals in their own office or a meeting room at their home institution, as suggested by Wilson (2003) and Bryman & Bell (2007). Following Wilson (2003) the interview guide consisted of a set of topics to be discussed rather than specific questions. Interviews lasted between around 30 and 90 minutes depending on the contribution each participant was able to make to the study. Seven out of the nine interviews were recorded to provide a higher flexibility for the data's processing and greater data comprehensiveness (Carson et al., 2001; Punch, 2009; Bryman & Bell, 2007) with two interviewees preferring not to be recorded. While the researcher took additional notes (by hand) during all interviews to keep track of ideas and gather data on the interviewee's behaviour, the notes of the two interviews not recorded also included complete statements of the participant to better use them in the analysis.

All qualitative data was transcribed using the software F4. The software automatically adds timestamps to the transcript enabling researchers to quickly find areas of interest during the analysis phase (if listening to the original record is necessary). Besides the researcher itself, two other people supported the transcription process of the recorded interviews, given clear guidelines how to transcribe the data. Each transcript was again audited by the researcher against the original record of the interview. This process did not only serve as a check of the correctness of the transcription, but also helped the researcher to get "close contact and familiarity with the data" (Boyatzis, 1998, p. 45).

Lincoln and Guba (1985) as well as Flick (2003) refer to several quality assurance measures to ensure the reliability of qualitative research results, including (1) credibility, (2) transferability, (3) dependability and (4) confirmability. First, to ensure credibility, the data was analysed by a researcher, who has performed various

qualitative research projects in the past, with further advice acquired by the researcher when necessary. Second, transferability focuses on “the extent to which the researcher’s working hypothesis can be applied to another context [whereby it] is not the researcher’s task to provide an index of transferability; rather, he or she is responsible for providing data sets and descriptions that are rich enough so that other researchers are able to make judgments about the findings’ transferability to different settings or contexts” (Zhang & Wildemuth, 2009, p. 314). To support the transferability of the data and results, interviews were recorded and if this was not favoured by the interviewee, detailed notes were made. Third, dependability refers to consistency of the study’s internal processes and that the researcher describes and takes into account the changing conditions of the study (Bradley, 1993; Curry et al., 2009). Dependability is ensured by note-taking during the interviews as well as a careful transcription and analysis of the data. This included clear guidelines defined prior to the transcription, an audit of the transcriptions against the audio file, and taking enough time for the analysis. Fourth, confirmability accounts for the accuracy and coherence of the “data, findings, interpretations and recommendations” (Lincoln & Guba, 1985, p. 318) so that others reading the results could confirm them (Bradley, 1993). Strategies applied to ensure confirmability included the full transcription of the interviews, the auditing of the transcriptions as well as the discussion of the results with fellow researchers who confirmed the findings, interpretations and recommendations derived from the data.

To summarise, data was collected through face-to-face in-depth interviews undertaken at the institution of the interviewee with various strategies being applied to ensure credibility, transferability, dependability and confirmability. Having discussed data collection and preparation, the next section will detail the analysis of the transcribed data.

3.3.4 Data Analysis

The analysis was undertaken using QSR NVivo 8 and a thematic analysis approach. Thematic analysis refers to an approach involving the development and application of codes of data (Morse 1991; Sandelowski 1995). Thematic analysis is closely related to content analysis which refers to any technique drawing conclusions “by objectively and systematically identifying specific characteristics of messages”

(Holsti, 1969, p. 14). The two terms, thematic and content analysis, are often used interchangeable or even used together, as in “thematic content analysis” (e.g. Smith, 1992; Green & Thorogood, 2013). Vaismoradi et al. (2013) highlight the difference between the two by stating that thematic analysis is more qualifying and content analysis is more quantifying.

To analyse the data of this study, the researcher went through the transcribed data numerous times and coded it. Coding refers to the “operations by which data are broken down, conceptualized, and put back together in new ways” (Strauss & Corbin, 1990, p. 57). Following this approach, nodes were developed based on the literature review and modified during the data analysis process. The researcher moved back and forth between the theoretical and interview data until a thorough understanding was reached.

Before the results of the analysis process will be presented, the next chapter will outline the main limitations resulting from the research design and methodology.

3.3.5 Limitations

The results of this qualitative research step have to be interpreted in the light of various limitations. First, as Patton (2001) states, the selection of the sample (e.g. region, age, profession, interest) influences the results. With respect to this research, an overrepresentation of academics and KTT professionals from Central England can be identified with other regions not being represented. In addition to this geographical under and over representation, primary engineering researchers were interviewed while this study takes into account all research disciplines as outlined in the Common European Research Classification Scheme (CERIF), includes Humanities, Social Sciences, Natural Sciences and Mathematics, Biomedical Sciences and Technological Sciences.

Second, as nearly all interviews were recorded, this could limit the results collected. Respondents might be less likely to share their knowledge, opinions and ideas, and even when the interviewer guarantees confidentiality the interviewee might still withhold information (Walsh & Wiggins, 2003). Two interviewees preferred not to be recorded with one specifically mentioning that “if you want a good interview, we should not record it”. While this rejection of interview recording can

be seen as positive in terms of interviewees recognising its influence, it could also be interpreted as an indicator of the delicateness of the topic.

Third, the personal opinion, attitude or other characteristics of the interviewer might have influenced the answers of the respondents (Colombotos, 1969). For example, the researcher who conducted the interviews was, at the moment of the interviews, working for nearly five years in a research centre dedicated to UIRs. His strong belief that UIRs can benefit various stakeholders in many ways might have influenced the data collection and analysis process.

Fourth, the results might be biased through the usage of snowball sampling since individuals are likely to suggest contacts with the same or similar views as themselves (Wilson 2003).

Having discussed the design of the qualitative pre-study, the following section will detail the results of the analysis undertaken.

3.4 Discussion of Results

The qualitative research step aimed to gain a better understanding of value creation in UIRs. More precisely, exploratory research was undertaken in order to validate trust and commitment as the main drivers of UIR and to determine which stakeholder values should be included in the quantitative study. The following three sections present the results of the qualitative interviews undertaken with academics and KTT professionals in England. The first section will highlight results with respect to the application of RM in the context of UIR as well as trust and commitment as two specific relationship characteristics. The subsequent section elaborates on expectations in UIR, a topic which emerged during the interviews. Lastly, stakeholder benefits and sacrifices are discussed, referring to the ST perspective in this study.

3.4.1 RM, Trust and Commitment in UIRs

During the interviews support was found for taking a relationship perspective on exchanges between universities and industry. For example, interviewee 5 highlighted:

“It’s all about the individuals. If you get along with an individual, you will work with them, otherwise you don’t. [...] organizational relationships don’t tend to work. [...] With some people it’s just like friendships. With some people, you can meet them again after fifteen years and you start at the same point you left off last time, and with other people you have to rebuild a relationship after five years or after a year, because people have forgotten.” [I5]

While others also referred to specific relationship characteristics, interviewee 6 put special emphasis on the relational view by stating “there are all those other benefits in having a good relationship” and focusing on “building up long term relationships with industry that are mutually beneficial”. Thus, the interviews support the more recent integration of RM and UIRs, which follows the rather transactional view dominating this field of research before the turn of the century.

Previous research has found trust to be a cornerstone of UIRs (e.g. Santoro & Gopalakrishnan, 2001; Mora-Valentin et al., 2004; Plewa, 2005; Ostergaard, 2009). The interviews conducted confirm this centrality of trust with respondents stating trust to be “absolutely vital” (I7) and their existence to be of “high importance” (I6). Thereby trust in benevolence takes a special role. For example, one interviewee (I3) specifically refers to the trust in correct judgments made by the partner.

“There has to be a relationship on trust and respect [...]. They’re coming from different kinds of organizations, universities and businesses but they often need to function according to entirely different rules and time scales and their values are often quite different but you have to get to this point where these two individuals trust each other to make correct judgments, to work effectively on a project together and so on. So yeah they need to respect their differences but at the same time trust each other to work all together.” [I3]

The value of trust is also highlighted by interviewee 9 who states that academics often do not want to share (contact) details of the partner as building trust has been a long process and might be destroyed by other individuals entering into the partnership. One interviewee (I6) also outlines that trust is especially important when the results of the partnership are commercially exploitable. Following Mayer et al.’s

(1995) classification, both statements could either refer to benevolence trust (trust in the intentions and motives of the trustee) or integrity trust (trust that the trustee acts along certain principles, e.g. honesty). Taking into account the cultural differences between universities and business organisations, e.g. in terms of time scales or priorities (Barnes et al., 2002; Thune, 2007), it can be assumed that benevolence trust takes centre stage in the trust formation in UIRs.

In addition to trust, empirical research on UIRs also found commitment to be both a basic requirement but also a main driver of relationships (Plewa, 2005; Palmatier et al., 2007; Frasquet et al., 2012). Focusing on negative examples of missing commitment, interviewee 3 states:

“I particular see this where company ownership changes or something else about the company changes direction or a key person leaves, a key sponsor of the project in the company leaves during the course of the project. Then you can often find that the company supervisor has found that they are supposed to be spending time on this project but actually they are gotten things which now have become much more important to do, the projects which have become less important too then and so they don't perform there all very well. The associate who is in the middle of all this tries to do a good job, tries to make sure that something good is coming out of that for their CV. But you get that thing sometimes that the world has moved on. The project isn't actually going to make a difference to the company in the long term. They are not particularly interested in the outcome or the associate isn't going to get a job for example at the end of the project with the company. And then that's hard to sustain the relationship effectively.” [I3]

Interviewee 9, on the other hand, gives a positive example of mutual commitment where both university and business invest resources of non-monetary nature.

“For example, [company] gives design assignments to the academic on which students can work. There is a clear commitment by the academic that [company] own s the IP of the designs and [company] is committed to give assignments every now and then for students. [I9]

Both statements, which are exemplary for further responses, highlight that the commitment is based on a rather rational calculation of benefits and sacrifices. While also examples of affective and normative commitment (Meyer and Allen, 1984, 1990) have been found in the interview data, the dominant commitment type extracted from the data is calculative commitment, as highlighted in the two examples above. In the first example, the company limits its commitment as “they are gotten things which now have become much more important to do” whereby the second example shows that assignments for students are exchanged in return for the company owning the intellectual property of the results, referring to an exchange commitment on a rational basis.

Overall, the interviews revealed the importance of relationships in exchanges / interactions between the university sector and industry, in line with recent research. In addition, both trust and commitment were confirmed to be key value drivers whereby benevolence trust and calculative commitment are of particular relevance, compared to the other types of trust (capability and integrity trust; Mayer et al., 1995) and commitment (affective and normative commitment; Meyer and Allen, 1984, 1990).

3.4.2 Expectations in UIRs

During the execution and analysis of the interviews, expectations have been identified as a characteristic having a large influence on UIRs. Rather than looking at communication (Gray et al., 2001; Daniel et al., 2002; Frassetto et al., 2012) and / or integration (Plewa, 2005) in UIRs in general, the interview data shows evidence that two aspects of expectations seem to affect relationship success, namely (1) a common understanding of expectations as well as (2) the commonness of expectations. Each of these two emerging aspects is discussed below.

The first aspect of expectations which emerged from the data addresses the fact that sharing expectations among partners has a positive influence. For example, one interviewee stated:

“If you want to do work with businesses, you have to understand why they’re in it. I think academics know why they’re in it. They have to understand what are the business benefits. [...] One thing we identified is being able to understand what your clients are looking for.” [I8]

Another interviewee refers to Knowledge Transfer Partnerships (KTPs), a support mechanism which helps business to gain expertise from the university sector by employing research students on a project basis (Harrington & Kearney, 2011), and the importance of the work plan and clear communication of interests of the parties involved.

“Yes, flexibility in terms of the direction of the activity. Again I don’t think that’s been a problem because it’s known from the start what is going to happen. A KTP project is based on a work plan that has been submitted as part of the original KTP proposal. It’s a good project planning discipline in the sense that by the time you are rewarded by the government funds everybody knows why they are doing the project. So the company knows why the university is interested, the university knows why the company is interested. You know what resources each site is going put into it. I mean you know what the work plan is going to look like. So that’s all great an advance.” [I3]

Interviewee 6 referred to this work plan as stated above as the “working arrangement” contributing to a well performing relationship. Another interviewee (I5) highlighted the process of understanding expectations by referring to the need to talk to find out whether you are “on the same plane”. Interviewee 9 again focused on the individual characteristic of openness required to actually understand and accept expectations of others.

RM literature refers to what is called “common understanding of expectations” in this study as mutual understanding. For example, Naudé & Buttle (2000) aimed to understand what supports quality relationships and identified mutual understanding as one of the five key characteristics named by middle to senior executives under study. In the same line, Morgan and Hunt (1994) state that mutual understanding positively contributes to relationships lasting longer with Möller and Halinen (2000) outlining that mutual understanding is especially important in complex exchanges. Price et al. (1995) highlight that mutual understanding can foster the positive evaluation of services, whereby it is unclear if a lack of mutual understanding may results in negative evaluations.

With respect to the element about which a mutual understanding has to be developed, differing research focuses and results can be found. Lee et al. (2001), for example, focus on mutual understanding of the partner's business culture while Holm et al. (1996) outline the importance of mutual understanding on the coordination of exchange activities. Tzokas and Saren (2004) take a broader view and refer to relationship partners "seek[ing] a mutual understanding of one another's capabilities and concerns as well as strategic, behavioral, cultural and purpose fit" (p. 128). In line with this, Goldkuhl (1998) points towards mutual understanding of the interests of the stakeholders whereby conflicting interests are likely.

In light of the statements of the interviews and the fact that literature confirms the relevance of mutual understanding for relationships, it seems reasonable to integrate mutual understanding of expectations as another variable in the conceptual model developed. With regards to the focus of the variable, two main aspects could be discussed: a focus on expectations or mutual understanding on the process (exchange focus) or on the outcomes (interest focus). Considering that this research aims to integrate RM and ST, it seems justifiable to focus on the (conflicting) stakeholder interests or outcomes (a central issue in ST), supporting the statement of interviewee 8 that "If you want to do work with businesses, you have to understand why they're in it". With respect to the wording used in the course of the study, the two terms "mutual understanding" and "common understanding" will be used interchangeably, reflecting the usage of the terms in RM and ST literature (e.g. Gollicic et al., 2003; Phillips, 2003; Knox & Gruar, 2007) and in the interviews.

Second, closely linked, however not identical with the common understanding of expectations, is the commonness of expectations. While a common understanding of expectations only declares that expectations are communicated and comprehended, commonness expectations refer to the overlap of such expectations.

Interviewee 6 referred to unsuccessful relationships taking place when "there has not been a fit between what I have in my interest and the industry need". In line with this, interviewee 9 clearly highlighted that academia and industry often have different expectations on outcomes:

“Researchers want papers, industry wants the commercial outcome. Industry e.g. wants a product in 12 month but the researcher says ‘but we have a 18 month project’” [I9]

In contrast to the above focus on outcomes, interviewee 3 highlights the different expectations on the process:

“Yes we have, sometimes have expectations of the past that the company that their project is going to deliver very quickly / is going very quickly to deliver immediate commercial benefits for the company. And it tends to happen in a very kind of fast moving very sales oriented sort of environment. And they don’t understand they need to think about things and do some careful research and planning because that’s not the way they operate. So there can often be tensions with an academic supervisor who is talking about, you know, doing further research and then analysing it and then drawing a plan. And the associate is caught in the middle of this. They got pressures from the company to be, you know, doing company work not necessarily related to the project. But they get stucked into the kind of manic every day rush. They are trying to sell things and the academic is trying to hold them back and say look you need to do this research properly. So yes you can get varying expectations in that respect.” [I3]

In this respect, interviewee 9 also experienced that researchers generally have to make more compromises than industry because if they do not offer what the business expects, the business partner looks for another university. Thus, different expectations do not automatically result in unsuccessful relationships. However, they might be considered as a starting point for aligning expectations. Interviewee 3 agrees to this as well by stating:

“[...] usually a project, certainly after the first 3 months will have established [shared expectations], people will find a way of working effectively together. And everybody compromises and gets on to the job and fairly enjoys it.” [I3]

In the same vein, interviewee 6 sees the definition and commonness of expectations at the start as crucial for later success.

“For me it is being establishing the parameters at the start. [...] So, that has been essential for building up long term relationships with industry that are mutually beneficial.” [I6]

With respect to the link between trust, the efforts to share information and discuss the project, and project success, interviewee 6 stated:

“The time required, I think, if we put the time in, you get the benefits out by being a stronger project. So, the time to discuss that the project, the time to establish that working relationship is right. [...] So everybody has got the trust. They make the project a little bit more likely to be successful. So, it is an investment for a purpose.” [I6]

Interviewee 6 thus highlights a positive influence of the commonness of expectation on trust, a relationship characteristic having been identified as a key driver of UIR value creation in this research.

Literature refers to what is called “commonness of expectations” in this study primary as shared or mutual goals, or goal congruence (e.g. Witt, 1998; Naudé & Buttle, 2000). Khalfan et al. (2007, p. 387) define shared goals as “a joint understanding of the roles and aims of project work” with Spekman et al. (1997) specifically discussing shared goals in the context of RM by highlighting that shared goals differentiate the transactional perspective from the relational one. The discussion of shared goals is often directly linked to the discussion of mutual understanding (e.g. Khalfan et al., 2007) as a common understanding of the expectations is required to develop shared goals. Overall, many studies highlight the importance of shared goals and expectations for relationships, including Ring Smith & Van de Ven (1994) and Kadefors (2004).

Considering the statements of the interviews and the fact that literature confirms the importance of shared goals for relationships, it seems valuable to add the commonness of expectations as another variable to the conceptual model. With respect to the specific focus of the variable, it can be argued that the emphasis should be placed on expectations regarding relationship outcomes, following the argumentation above on the new variable “common understanding of expectations”. As a result, the variable would also focus on the outcome perspective, rather than the

process perspective, thus also creating a more coherent model with a specific focus on outcomes.

To conclude this section, in addition to trust and commitment, expectations have been identified as a key driver of value creation in UIRs. More specifically, two different aspects have emerged from the data, namely the common understanding of expectations, as well as the commonness of expectations. Both aspects will be integrated in the conceptual model and focus on the expectations regarding the outcomes of the relationship.

3.4.3 Stakeholder Benefits and Sacrifices in UIRs

This research focuses not on the value generated for academics themselves, but aims to understand how academics perceive the overall value of a relationship, including value generated for other stakeholders. Thus, the interviews also revealed benefits and sacrifices of other (direct and indirect) stakeholders. In the words of interviewee 3:

“I think that our academics [who] were involved in KTPs will clearly be able to articulate benefits from themselves alongside benefits for other people. I wouldn’t expect them to ignore those benefits.” [I3]

The following table summarises key statements on the benefits positively perceived by academics. Within the analysis of the data, the benefits were allocated to the six key UIR stakeholder groups identified in the literature review. When considering the table, it has to be noted that the interviewees were asked why they / other academics undertake UIRs, not which benefits these relationships give to non-academic stakeholders. Therefore, the answers below can be seen as unsupported responses which have a direct influence on the academic’s overall perceived value of a relationship.

| Stakeholder | Statement |
|----------------------------------|--|
| Academic / (research) team | “They start getting a bit of an income profile. For young researchers it was particularly beneficial, they are starting to get some research grants.” [I1] |
| | “Also, people are interested in real challenges to work on. So someone providing them some questions, some ideas of where they can do work ... they are feed that into their research rather than have to make up questions.” [I1] |
| | “But also they try to build up their area of expertise and build up a bit of a profile.” [I1] |
| | “It is not the money which primary drives the researcher” [I9] |
| | “First and foremost it is an emotional thing. I never did it for the money. I suppose it comes to something ... I wanted to do something useful” [I7] |
| | “That I was respected in the outside world, rather than in the university” [I7] |
| | “Personal satisfaction” [I7] |
| | “Companies pay Scholarships” [I7] |
| | “What helps in the career is research publication but you can do very good research publications on the basis of industrially funded research, you can even do good publications on the basis of consultancy. As long as you have a good relationship the company, which we tend to have, we always write into consulting contracts that we want to publish the results. Even if it means we have to reduce the fees, it is interesting.” [I5] |
| | “They want money, but even if the university would allow them to have some consultancy income as a result of their work, more interested in having PhD students, a team of PhD students. That is what they want most” [I8] |
| Students | “For example, [company] gives design assignments to the academic on which students can work. There is a clear commitment by the academic that Jaguar own s the IP of the designs and Jaguar is committed to give assignments every now and then for students.” [I9] |
| | “Yes, they [the courses] do [benefit]” [I6] |
| | “There are all those other benefits in having a good working relationship with industry” [I6] (referring to guest lectures, student placements, internships, theses on bachelor, master and PhD level) [I6] |
| University | “1/3, 1/3, 1/3 rule ... 1/3 of the income for the university, 1/3 for the department, 1/3 for the researcher.” [I7] |
| | “Get new researchers” [I7] |
| | “Get new facilities” [I7] |
| | “And the secondary objective is to get more knowledge into the university” [I5] |
| Business partner | “I would know people who said ‘Brilliant project. The company has been transformed and it has been really really interesting’” [I8] |
| Society | “There is no point of doing engineering without contact to industry” [I7] |
| | “Invest in the work on the next algorithm, shape the future” [I7] |
| | “Well without industry utilizing the results, there is no product. We definitely need a product and we need to push on. Otherwise we just have some papers sitting on the shelf. Of course we need the papers, we need the information, but also we need the products, there needs to be stuff in the market. And that is certainly important for engineering. That’s fundamental. Without that industry, |
| | |

there is no engineering. If you went to a physics department they may say something slightly different, but essentially, they need people to make the extra move. Develop lasers and all these other things, new ideas. Without the industry, nothing happens.” [I2]

I think the enthusiasm is important. There is mutual benefit which raises the level of interest. Because academia can be quite dull and certain times, it’s very quiet and enclosed, introspective, almost incestuous. There’s no need to get out. It’s about getting the technical message, your research message to the public. So, research is very hidden, very closed off, and we need to get out. That’s why we encourage our students: Get into market, visit industry, come and talk to them finding what they want. Get out and find out more. Because without that, there is no result.” [I3]

“There is more than papers. It’s the society” [I2]

Table 12: Interviewee Statements on Stakeholder Benefits

The above table shows that the academic’s perception of the value of a relationship goes far beyond own, personal benefits. While benefits of others also result in a positive feeling for the academic, it seems that creating benefits for other parties in general is the main driver, not the positive feeling associated with it. Therefore, rather than focusing on the academic alone, a stakeholder perspective on value creation in UIR seems necessary, as proposed in this research.

With respect to the stakeholder groups represented in the above statements, two aspects can be emphasised. First, business benefits do not play a major role for academics with business staff benefits not even be named once in the interviews. Second, single statements refer to the research team as getting some benefits. For example, interviewee 7 sees scholarships for the research team as a positive outcome with interviewee 8 also outlining that academics are “more interested in having PhD students, a team of PhD students”. Thus, the value generated by UIRs for the academic’s research team seems to be important for the academic. This would suggest splitting the stakeholder group “academic” into the academic itself and the academic’s research team, a classification which also seems to make sense in terms of the later operationalization of constructs in the quantitative survey.

With respect to the downside of UIRs, all interviewees agreed that sacrifices are attached to UIRs. Most often, time and energy were named by the respondents as the main costs (I3, I5, I6, I7, I8, and I9). In the words of interviewee 6:

“I smile about it because it does take a lot of time and energy. It is a necessary thing. I get benefit from working with industry, that [the time and energy] is a downside [...]. For every benefit there is usually a

counterbalance for it. So I just accept it the ways it is. Yes, it would be nice if that would be easier. But there is lots of things in life we would say it would be nice if that would be easier. The time required, I think, if we put the time in, you get the benefits out by being a stronger projects. So, the time to discuss that the project is, the time to establish that working relationship is right. [...] So everybody has got the trust. They make the project a little bit more likely to be successful. So, it is an investment for a purpose.” [I6]

Thus, interviewee 6 sees sacrifices as an investment rather than only negative. Interviewee 5 also highlights that sacrifices are a given part of relationships and can be seen as a management instrument to increase the value for the business partner, basically stating that increasing the personal or the research team’s sacrifices might lead to higher benefits and thus higher value for the business partner:

“No, it is just hard work [...], because if you work with industry you generally have to work to very hard deadlines and you have to deliver the goods. You can’t at the end turn around and say “Well, it didn’t work.” If it didn’t work you have to give very good reasons and show how it could be made to work. If it doesn’t quite work, you have to make it work. We very often have projects which finish and we have to decide to do some more work to give the industry the value we think they should have. And that is unpaid work. You do a lot of unpaid work with industry. I wouldn’t say it’s negative. It’s just a fact.” [I5]

Another sacrifice discussed was the ability to publish. Interviewee 7 states that he did not “play the game right” as he should have published more rather than just writing industry research report. As a result of his lack of theoretical publications he thinks that he lost opportunities for promotion within the university. This view is in conflict with the one by interviewee 5 who believes that industry partnerships, even in the form of consultancy, can provide various benefits for publication.

With regards to the sacrifices in UIRs, as stated in the interviews undertaken, two additional aspects can be observed. First, most interviewees link sacrifices directly to the benefits of UIRs. Considering that the interviews were dedicated to the

concept of value and the term value was often used, this linkage supports the conceptualisation of value as the trade-off between benefits and sacrifices (Zeithaml, 1988). Second, confirming the results of the literature review (see section 2.4.5), far less sacrifices were stated compared to the larger number of benefits as shown in the table above.

To summarise, the interviews revealed that academics take into account a wide range of benefits and sacrifices when evaluating the value of a relationship. With respect to the benefits, the results indicate that not only benefits for the academic itself, but also for other stakeholders play a significant role. While business benefits do not seem to have a large influence and business staff benefits not being named at all, the research team was highlighted by some interviews, suggesting a special consideration in the conceptual model.

3.5 Model Refinement and Hypothesis Development

The qualitative research step helped to deepen the understanding of value creation in UIRs, generating new knowledge to be integrated in the conceptual model developed based on literature. Taking into account the findings presented in the previous section, the conceptual model was refined as follows: First, the interviews confirmed trust and commitment as important drivers of relationships. However, the interviews also allowed identifying the specific types of trust and commitment which are key. With respect to trust, literature refers to three key types, namely ability trust, benevolence trust, and honesty trust (Mayer et al., 1995). The interviews indicate that benevolence trust plays a central role in UIRs so that this specific type will be investigated further in this study.

Second, similar to the specification of trust, the interview results indicated which commitment type drives relationships most. Among affective, calculative, and normative commitment (Meyer & Allen, 1984, 1990), calculative commitment was found to play an important part so that this research will focus on this specific commitment type in the course of this study. Considering the specification of commitment as calculative commitment, the expected relationship between trust and commitment, as outlined in section 2.5, needs to be altered. As past research indicates, trust impacts affective commitment positively, but impacts calculative commitment negatively (Geyskens et al., 1996).

Third, in addition to trust and commitment, expectations emerged as an essential relationship characteristics driving value creation in UIRs. Hereby, two different aspects of expectations have to be separated, the common understanding of expectations in UIRs, and the commonness of expectations in UIRs. Due to the centrality in the interview results, both aspects will be added to the conceptual model, conceptualised as antecedents of trust and commitment. The conceptualisation of mutual understanding effecting relationship commitment thereby follows the results of Holm et al. (1996). The authors also proposed a positive impact of mutual understanding on the profitability of the relationship, in line with Bruneel et al. (2010) who assume that “trust relies on strong bonds of mutual understanding” (p. 865), a statement made in the context of a UIR study. However, this hypothesis had to be rejected and mutual understanding was found to effect profitability only through commitment, so that this research also does not hypothesise any direct link between an expectation variable and any value variable. With respect to the relationship between the common understanding of expectations and the commonness of expectations, it can be argued that the sharing of information, and thus the development of a mutual understanding (Forman, 1989), makes the sharing of expectations more likely. Thus, a positive effect of common understanding of expectations on the commonness of expectations is proposed. Lastly, Khalfan et al. (2007) see shared goals as one possible way of building trust, so that a link between the commonness of expectations and trust can be assumed. Similarly, commitment can be expected to be influenced positively by the commonness of expectations as this research understands commitment as calculative commitment, which refers to a rational calculation of benefits and sacrifices. Thus, overlapping expectations would result in lower conflicts of interest, and potentially lower sacrifices, ultimately increasing the value created.

Fourth, the results of the pre-study do not confirm the expected impact of value generated for business staff on the academic’s overall perceived relationship value. In other words, no interviewee has named a benefit for business staff as a reason for them (or academics in the case of KTT professionals being the interviewee) to be involved in UIRs. Therefore, it can be expected that benefits for business staff do not affect the overall perceived relationship value of academics. As a result, this stakeholder is eliminated from the model.

Firth, the interviewee statements highlighted the importance of benefits for the research team in an academic's overall assessment of a relationship. In addition to their own benefits, academics seem to value benefits generated for the research team, e.g. scholarships or new PhD students joining in. Therefore, value for the research team is added to the model, or in other words, the value for academics is split into value for the academic itself, and value for the research team involved in the UIR (named "academic team" hereafter).

The following table summarises the hypothesised causal relationships between the variables of this research, based on the literature review undertaken and refined by the results of the qualitative pre-study conducted.

| # | Independent variable | Dependent variable | Predicted relationship |
|------|----------------------------|----------------------------|------------------------|
| H1 | Com. Und. of Expectations | Commonness of Expectations | + |
| H2a | Com. Und. of Expectations | Benevolence Trust | + |
| H2b | Com. Und. of Expectations | Calculative Commitment | + |
| H2c | Commonness of Expectations | Benevolence Trust | + |
| H2d | Commonness of Expectations | Calculative Commitment | + |
| H3 | Benevolence Trust | Calculative Commitment | - |
| H4a | Benevolence Trust | Value for Academic | + |
| H4b | Benevolence Trust | Value for Acad. Team | + |
| H4c | Benevolence Trust | Value for University | + |
| H4d | Benevolence Trust | Value for Business | + |
| H5 | Benevolence Trust | Overall Rel. Value | + |
| H6a | Calculative Commitment | Value for Academic | + |
| H6b | Calculative Commitment | Value for Acad. Team | + |
| H6c | Calculative Commitment | Value for University | + |
| H6d | Calculative Commitment | Value for Business | + |
| H7 | Calculative Commitment | Overall Relationship Value | + |
| H8a | Value for University | Value for Academic | + |
| H8b | Value for University | Value for Acad. Team | + |
| H8c | Value for University | Value for Students | + |
| H8d | Value for University | Value for Business | + |
| H9a | Value for Academic | Value for Society | + |
| H9b | Value for Acad. Team | Value for Society | + |
| H9c | Value for University | Value for Society | + |
| H9d | Value for Students | Value for Society | + |
| H9e | Value for Business | Value for Society | + |
| H10a | Value for Academic | Overall Relationship Value | + |
| H10b | Value for Acad. Team | Overall Relationship Value | + |
| H10c | Value for Society | Overall Relationship Value | + |
| H10d | Value for Students | Overall Relationship Value | + |
| H10e | Value for Business | Overall Relationship Value | + |
| H10f | Value for University | Overall Relationship Value | + |
| H11a | Overall Relationship Value | Relationship Satisfaction | + |
| H11b | Overall Relationship Value | WOM | + |

| | | | |
|------|----------------------------|---------------------|---|
| H11c | Overall Relationship Value | Intention to Expand | + |
| H11d | Overall Relationship Value | Intention to Renew | + |
| H12a | Relationship Satisfaction | Intention to Renew | + |
| H12b | Relationship Satisfaction | Intention to Expand | + |
| H12c | Relationship Satisfaction | WOM | + |
| H13a | Intention to Renew | WOM | + |
| H13b | Intention to Renew | Intention to Expand | + |
| H14 | Intention to Expand | WOM | + |

Table 13: Predicted Relationships between Variables of the Refined Model

The following figure shows the refined conceptual model, integrating the five changes highlighted above and the respective captions of the hypotheses.

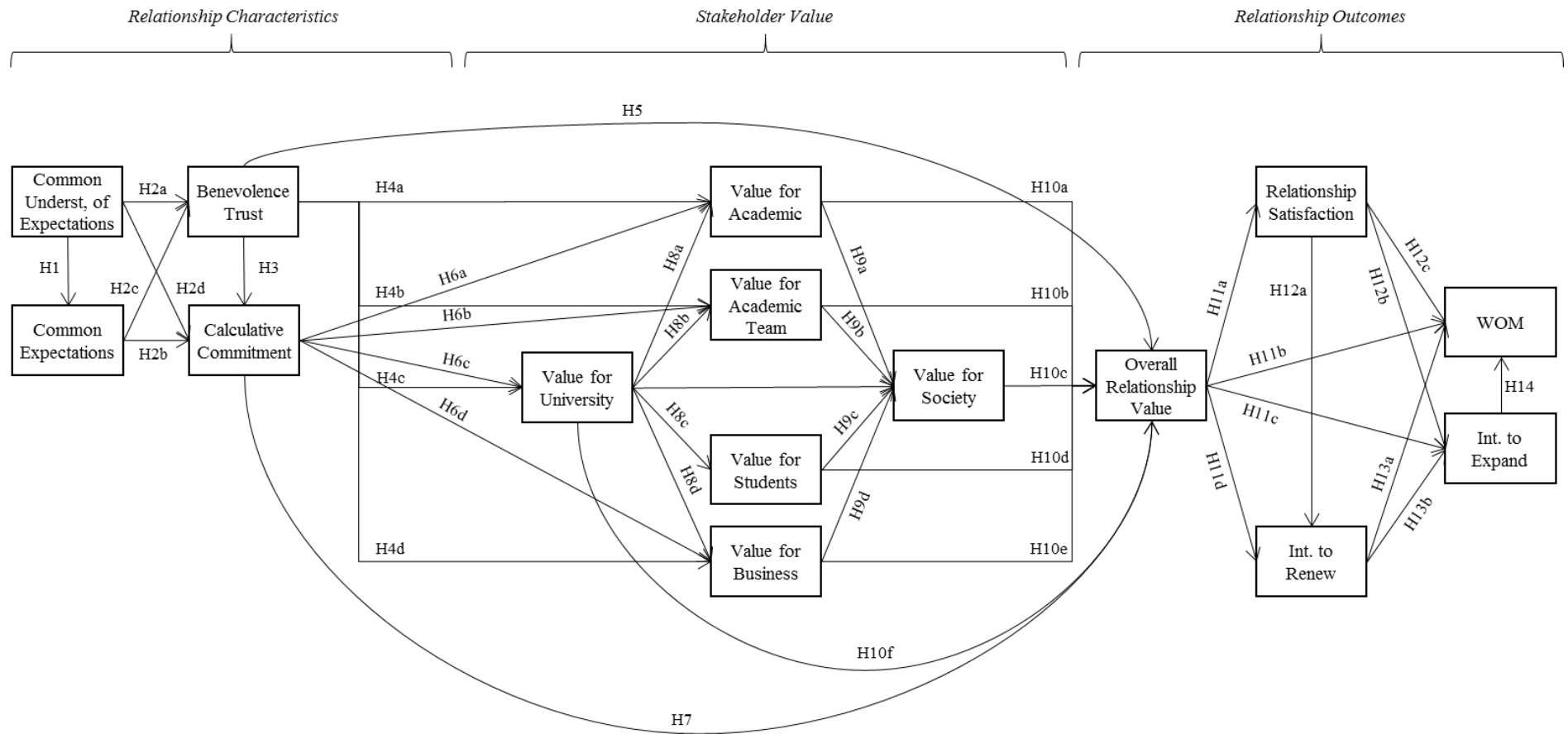


Figure 7: Refined Conceptual Model

3.6 Chapter Summary

This chapter detailed the overall research design of this study as well as the design and results of the qualitative research step undertaken, leading to a refinement of the conceptual model presented in the previous chapter. First, the pragmatism was outlined as the research paradigm on which this study is based. Following the paradigm's key tenet, to focus on what has to be done to answer research questions instead of following the either-or choice between qualitative and quantitative research, a mixed method approach integrating qualitative and quantitative research is justified. The justification was based on the need to first conduct exploratory research (interviews) in order to deepen the understanding of value creation in UIRs, and to potentially refine the conceptual model, before the model can be tested in an explanatory research step, using a web-based questionnaire.

Following the overall research design, the qualitative research design was discussed in detail, including the research method chosen, sampling, data collection and preparation, data analysis as well as limitations of the approach taken. Hereafter, the results of the data analysis were presented, structured in three different sections: (1) RM, trust and commitment in UIRs, (2) expectations in UIRs, and (3) stakeholder benefits and sacrifices in UIRs. The findings resulted in several adaptations and concretisations of the conceptual model. First, the trust element was specified more clearly based on the interview results and will focus on benevolence trust in this study. Second, similar to trust, the interview findings helped to further specify the commitment element in the conceptual model. Hereafter, commitment is considered as calculative commitment only, leaving out other commitment types such as affective and normative commitment. Third, two constructs were added as relationship characteristics driving stakeholder value, namely "common understanding of expectations" and "commonness of expectations". Fourth, business staff was excluded from the stakeholder values affecting the academic's overall perceived relationship value as no interviewee referred to value for business staff in the interviews. Fifth, and lastly, the academic's own benefits and sacrifices were separated from the value generated for the members of the academic team involved in the UIR, thus allowing a more detailed analysis of value generated for the academic staff involved in the UIRs under study.

Having presented the qualitative pre-study which resulted in a refinement of the conceptual model and several hypotheses, the following chapter will outline the research design of the quantitative study which aims to empirically test the developed model and hypotheses using a web-based questionnaire.

4. QUANTATITATIVE RESEARCH DESIGN

4.1 Chapter Introduction

In line with the designed multi-method research approach, this study conducted qualitative and quantitative research integrating exploratory, descriptive and explanatory research. Following the development of the overall research design, the implementation of the qualitative research step and the refinement of the conceptual model in the previous chapter, this chapter presents the research design for the explanatory research step, implemented though a web-based questionnaire, aiming to test the conceptual model and the hypotheses developed.

The chapter is structured as follows: First, the choice of a web-based questionnaire as the research method applied is justified. A discussion of the questionnaire design follows, comprising the levels of measurement, theory and analysis, the nature of constructs (reflective vs. formative, the operationalization of constructs, as well as the measurement scales. Hereafter the sampling method and its implementation as well as the drafting and pre-testing of the questionnaire are outlines. The next chapter details the data collection process including strategies applied to ensure a high response rate before the chapter is concluded. Finally, information on the data analysis phase are given before the chapter ends with a short summary.

4.2 Research Method

Compared to the explorative approach taken in the pre-study of this research, implemented through in-depth interviews with academics and KTT professionals, explanatory research was required to test the conceptual model developed. A web and questionnaire-based survey was chosen as the most appropriate method for reaching this objective. A survey refers to an instrument for “gathering information about the characteristics, actions or opinions of a large group of people, referred to as a population” (Al-Omiri, 2007, p. 511-512 referring to Tanur, 1982). Means to collect data in survey research include questionnaires and interviews (Mahanti & Antony, 2009) with phone and face-to-face interviews, as well as web-based, mail and fax questionnaires being the most common approaches found in literature. The choice for a web-based questionnaire as the most appropriate survey method for reaching

this objective was based on the various advantages and disadvantages described in literature.

With respect to the advantages of surveys in general, and of web-based questionnaire in particular, five characteristics were taken into account. First, web-based questionnaires are cost and time-efficient and thus support large sample size studies (Tse, 1998; Cobanoglu et al., 2001; Lukas et al., 2004; Fleming & Bowden, 2009). Second, data collection is independent of time and the geographical proximity (Perkins, 2004; Fleming & Bowden, 2009), thus giving participants flexibility with respect the response behaviour and preferences. As it was expected that many academics do not follow the nine-to-five mentality, this flexibility was deemed favourable. Third, the data collected is digitalised and immediately available (Llieva et al., 2002). This saves time and money, but also human error in data coding (Witmer et al., 1999; Griffis et al., 2003). In addition, it allows testing based on the first survey responses (e.g. testing construct reliability). Fourth, web-based questionnaires enable researchers to integrate high quality visuals and audio, and to make use of space-efficient drop-down boxes and further web elements (Fleming & Bowden, 2009). Given the large number of model variables to be integrated in the questionnaire, the usage of attractive and efficient web elements appeared beneficial. Fifth, a certain degree of individualisation is supported by many web-based questionnaire software programmes, such as Unipark or Inquiry Survey. The opportunity to individualise the questionnaire was deemed important in this study as the results should be based on a particular relationship. Thus, recalling the name of the relationship partner (stated in the beginning the questionnaire) throughout the survey was seen as a valuable feature to focus the attention of the respondents on a specific relationship.

Besides the various advantages of (web-based) questionnaires, several disadvantages should be considered and addressed as best as possible. First, literature refers to issues with regards to the sample frame due to the exclusion of individuals not using or having no access to the internet (Fleming & Bowden, 2009). In the academic sector, however, the use of the internet is widely spread, e.g. for performing desk research or communicating with peers. Therefore, a sample frame issue was regarded as rather minor. Second, web-based surveys might face a non-response bias, meaning that the responses gathered differ from those responses which

would be given by those not having answered the survey (Sax et al., 2003). Third, a generally accepted disadvantage of web-based questionnaires lies in the missing direct communication between respondent and researcher, potentially resulting in misconceptions of questions (Lukas et al., 2004), and often leading to lower completion rates in surveys (Klassen & Jacobs, 2001) as the respondent is not sure how to answer to a specific question. A common strategy to address this issue is an extensive pre-testing of the survey. Thus, extensive pre-testing is planned for this study to address this issue, especially to take into account the complexity of this research and the resulting pitfalls with respect to comprehensibility of the questionnaire. Fourth, various researchers report lower response rates of web-based questionnaires compared to face-to-face surveys (e.g. McDonald & Adam, 2003; Heerwegh & Loosveldt, 2008; Pan et al., 2014). The response rate issue was considered as crucial as academics as the respondent group were expected to receive lots of survey invitations and to select very carefully which ones they take. Therefore, it was deemed important to apply various strategies aiming to increase the response rate. Lastly, McDonald and Adam (2003) refer to the problem of creating reliable contact / email lists as people often change and / or delete their email address so that many survey invitations cannot be delivered.

Comparing the advantages with the disadvantages and the potential to address these disadvantages through the above outlined strategies, and following the general view that questionnaire-based surveys are a valuable and effective instrument to collect data for statistical analysis (Kinnear et al., 1993; Zikmund, 2003; Lukas et al., 2004), a web-based questionnaire was selected as the most appropriate method for the generation of data for the explanatory research step of this research.

Having justified the usage of a web-based, the following section will elaborate on the design of this questionnaire.

4.3 Questionnaire Design

This research has developed a conceptual model and hypotheses on value creation in UIRs and selected a questionnaire-based survey as the most appropriate method for data collection. This section is divided in four sub-sections which will outline the development of this questionnaire, starting with the levels of theory, measurement and analysis, followed by a definition of the nature of the constructs under

study and the operationalization of these constructs, with the presentation of the measurement scales used in this research concluding the section.

4.3.1 Level of Theory, Measurement and Analysis

Before starting with the development of a questionnaire, it is important to define the levels of theory, measurement and analysis (Currall & Inkpen, 2002; Zikmund, 2003). Klein et al. (1994, p. 198) highlight that the missing specification of levels “has led to confusion and controversy regarding the appropriate level of analysis for, and thus the appropriate conclusions to be drawn from, research”. To address this issue, this section will detail the levels of theory, measurement and analysis of the individual constructs of the conceptual model of this study. The specification of levels is seen as particularly important in this research considering the multi-level research approach undertaken, integrating the stakeholder and relationship level.

First, the level of theory refers to the focal unit researchers aim to explore and make generalisations about (Rousseau, 1985). This research integrates different levels of theory. All relationship characteristics (trust, commitment, common understanding of expectations, and commonness of expectations) are examined on a relationship level, the UIR level involving the university and business partner. Compared to this, stakeholder values in this research refer to different levels, including the individual level (the surveyed academic), group level (students, the academic staff, and business staff), organisational level (university and business) as well as a public level (society). Lastly, relationship value, relationship satisfaction, intentions to renew, intentions to expand, and WOM are investigated on the individual level, namely the academic surveyed. The different levels of theory thus reflect the research questions outlined in chapter 1.

Second, the level of measurement refers to the source of the data (Currall & Inkpen, 2002), e.g. individuals or groups. While this research integrates different levels of theory, it was not deemed possible in the context of this study to generate data from all the different stakeholders involved in the conceptual model (e.g. due to anonymity issues). The difficulty of generating dyadic data in the context of UIRs is shown by Plewa (2005) who generated data from both the university and business side. Overall, she reports on 62 dyads only, a limitation also highlighted by the author. Considering that an entire model is proposed to be tested in this research,

issues with respect to sample size might occur. As Hoelter (1983) as well as Garver and Mentzer (1999) recommend, a minimum sample size of 200 should be given for statistical analysis using SEM, as proposed in this research (see section 4.7 for more information). In light of the difficulties to generate dyadic data or even data integrating more stakeholders, a key informant approach (Patterson & Spreng, 1997) was applied, with academics being the key respondents. While the reliability of the data can be criticized (John & Reve, 1982), surveying academics involved in UIRs and reporting on a specific relationship was seen as a suitable method for this research.

Lastly, the level of analysis details the unit at which statistical analyses and hypotheses testing are applied (Rousseau, 1985; Klein et al., 1994). In this research, the levels of analysis were in line with the levels of theory of the respective model constructs, so that no data treatment in this respect was necessary.

To summarise, this research makes use of different levels of theory, measurement and analysis. The level of measurement is limited to the individual level, using a key informant approach, while the level of theory and analysis match and include the individual, group, organisational, public and relationship level. Having specified the levels of theory, measurement, and analysis for this study, the next section will outline whether the model's constructs are considered to be formative or reflective.

4.3.2 Formative and Reflective Measurement Models

Before starting with the development of scales, researchers need to specify the nature of their constructs – reflective or formative (Anderson & Gerbing, 1988). Jarvis et al. (2003) highlight in their article that 29% of the latent constructs used in four top marketing journals were incorrectly modelled. The journals included the Journal of Consumer Research, Journal of Marketing, Journal of Marketing Research, and Marketing Science with papers from 1977 until 2000 (1982 to 2000 for Marketing Science) being considered in the analysis. As a result, the specification of the nature of constructs has received quite a lot of attention recently (Albers & Hildebrandt, 2006; Diamantopoulos et al., 2008), also and especially in research dealing with the concept of value (e.g. Lin et al., 2005; Baxter, 2009; Diamantopoulos,

2010). Therefore, it was deemed important to clearly outline the nature of the constructs used in this study.

Reflective measurement models refer to a specification whereby the latent construct causes (or reflects) its indicators (Jarvis et al., 2003; Coltman et al., 2008). In consequence, all measures in a reflective construct correlate positively and a change in the latent construct results in variation in all these measures (Bollen & Lennox, 1991; Diamantopoulos et al., 2008). As all indicators reflect the same construct, they are exchangeable, meaning that a replacement or elimination of one item would not change the construct's nature (Diamantopoulos & Winklhofer, 2001).

In formative measurement models latent constructs do not cause their indicators, but the indicators cause (or form) their latent constructs (Jarvis et al., 2003; Coltman et al., 2008). As a result, the meaning of the latent construct is given by its indicators (Diamantopoulos et al., 2008). Each indicator represents a specific aspect or facet of the construct (Edwards, 2010), e.g. an individual's occupational prestige, income, education and neighbourhood in the case of the formative measurement model for Socio-Economic Status (Bollen & Lennox, 1991), so that the indicators are not exchangeable as in the case of reflective measurement models. With the construct being defined as the linear sum of its measures (Bagozzi, 1994), the indicators are not allowed to correlate.

This research focuses entirely on reflective measurement models. While the choice of reflective measurement models is common for most constructs used in this research, a justification for all value-related constructs is necessary, given the active discussion on the topic in literature (e.g. Lin et al., 2005; Baxter, 2009; Diamantopoulos, 2010). Although this research refers to value as the trade-off between benefits and sacrifices with both having multiple dimensions, which would suggest to operationalize value as a second-order formative construct with two first-order reflective constructs (benefits and sacrifices), a reflective approach was chosen for this explanatory research step in order to address the issue of generating a large enough sample. In other words, a reflective measurement for value was deemed appropriate as a formative specification would have at least doubled the number of items without providing a larger contribution to one of the three research questions. Especially the resulting higher number of questionnaire items was considered in the decision between a formative or reflective measurement as a total of seven value

constructs (relationship value plus six stakeholder values) existed, so that a formative specification would have resulted in 35 additional questionnaire items if five items would have been used for each reflective construct (benefits and sacrifices). In the case that each benefit and sacrifice dimensions of each stakeholder would have been measured separately, a far higher number of items would have been required. Given that this research is interested in understanding the interrelationships between the different value constructs and their antecedents and outcomes, it was seen as appropriate to conceptualise value as a reflective construct in this research step.

Special consideration had to be given to the specification of the relationship value construct. The relationship value construct could have been specified as a formative or reflective construct. As a formative construct, relationship value would have been “formed” by the different stakeholder constructs (and selected relationship characteristics). In other words, relationship value would have referred to the linear sum of the individual stakeholder values plus value generated from relationship characteristics, as recognised by the academic. As the research questions indicate, this research, however, is not interested in identifying the value dimensions of academics involved in UIRs, but in a broader perspective on value creation in UIRs, for example relationship characteristics driven stakeholder value creation (research question 1) or the interdependences between stakeholder values (research question 2). Thus, the research is not limited to the academic itself and what the academic considers as valuable in the assessment of UIRs. Rather this study considers value creation from a more holistic view, taking into account different perspectives. A look at the different levels of this research (as outlined in section 4.3.1) highlights this approach as well. The level of theory of relationship value in this research is the individual academic as this research is interested in the academic’s overall perception of the value of the relationship. Compared to this, the stakeholder values refer to the respective stakeholders and thus are not in line with the level of the relationship value construct. In addition, the relationship characteristics are considered on the relationship level. Thus, the research questions, as well as the conceptualisations of the different constructs, resulting from the research questions, lead to a reflective measurement approach of the relationship value construct in this

study with stakeholder values being conceptualised as antecedents of relationship value.

To summarise, this research uses a reflective measurement approach for all constructs of the conceptual model. The usage of a reflective approach towards the model's value constructs was justified by the aim of this study to provide a holistic view on value creation in UIRs, integrating multiple perspectives and levels.

4.3.3 Operationalization of Constructs

In line with the levels of this research and the reflective nature of measurement models as justified in the previous section, each construct of the conceptual model had to be operationalized. The operationalization of constructs included the identification of existing scales and the decision whether they are (with or without adaption) suitable to be used in the context of this study or whether new scales have to be developed.

Stakeholder and relationship value

With value being specified as a reflective measurement model in this research, not the single benefit and sacrifice dimensions were used, but statements reflecting the value generated. Literature refers to a variety of reflective scales for (relationship) value, many of them directly referring to the two dimensions (benefits / advantages respectively sacrifices / costs / disadvantages; e.g. Ulaga & Eggert, 2006; Gallarza & Saura, 2006; Ritter & Walter, 2012; Geiger et al., 2012) with the remaining using terms such as “rewarding” (Alejandro et al., 2011; Burnette et al., 2012), “positive contributions” (Geiger et al., 2012) or “a good buy” (Sweeney et al., 1999) pointing towards the result of the comparison process of benefits and sacrifices. For this study, four measures from different studies were adapted and combined (see list below). The same four measures were used for all seven value constructs (relationship value plus six stakeholder value constructs) with adaptations including the change of the reference point (the respective stakeholder) in each construct as well as minor rephrasing of the scales in general, for the benefit of the measures' readability. The following list shows the four measures on the example of society value:

- Our relationship with [partner] offers value to society, considering all society benefits and sacrifices associated with it (adapted from Alejandro et al., 2011; Ritter & Walter, 2012)
- Overall, this relationship makes a positive contribution to society (adapted from Geiger et al., 2012)
- All in all, society gets more out of our relationship with [partner] than it puts in (adapted from Burbank, 1998; Geurts et al., 1999)
- Taken as a whole, this relationship is rewarding to society (adapted from Alejandro et al., 2011; Burnette et al., 2012)
- All things considered, this relationships provides value to society (adapted from Ulaga & Eggert, 2003)

As this research is not only focused on the value that has already been created in the UIR, but also on the expected future value, the stakeholder and relationship value scales will be accompanied by a short text highlighting this focus. In addition, this text will provide information on the scope of the respective stakeholder groups. For example, students not being involved in the UIR belong to the group students, those being involved in the UIR belong to the group academic team. To prevent overlapping, the value generated for students, the surveyed academic and the academic team are excluded from the stakeholder group “university”. Accordingly, the university, the business partner, the academic, the academic team and students are excluded from the stakeholder group society.

Outcomes of relationship value

Satisfaction has been conceptualised in this research as the outcome of an evaluation process taking into account the expected and perceived performance of a project, service or, as in this case, a relationship (Gerson, 1994; Anton, 1997). While some authors use scales reflecting the expectation dimension (e.g. McDougall & Levesque, 2000; Plewa, 2005), most authors prefer statements referring to the outcome of the evaluation process. For example, some use elements in their statements such as “I am happy” (Roberts et al., 2003), “I am satisfied” (Patterson & Spreng, 1997) or “I did the right thing” (Chiou et al., 2002). Another difference between

scales can be found in one-item (e.g. Baumann et al., 2007; Gil-Saura et al., 2009; Kelly, S., & Scott, 2011) and multi-item scales (e.g. Patterson & Spreng, 1997; Chiou, 2004; Ulage & Eggert, 2006). Following prior research (e.g. Baker & Crompton, 2000; Cole & Illum, 2006) this study used four semantic differential scales for relationship satisfaction, namely unfavourable / favourable, dissatisfactory / satisfactory, displeasing / pleasing, and negative / positive.

WOM has been characterised in this research as informal communication concerning the evaluation of goods, services or brands. Following past research on WOM and loyalty in general (of which WOM is a part), this research adapted four items frequently used in literature (e.g. Parasuraman et al., 1994; Foster & Cadogan, 2000; Wong & Sohal, 2003):

- I say positive things about university-industry relationships to my colleagues at my university
- I would recommend other academics at my university to get involved in university-industry relationships
- I would encourage my academic colleagues to work with business
- I would propose working with business to other academics at my universities who seek my advice

As indicated in the literature review of this study, research on intentions to renew relationships is sparse; so is the availability of measures for this construct. Plewa (2005) dedicated her work to UIRs and developed a one-item scale based on Farrelly's (2002) study. While the headline in Plewa's (2005) survey refers to the intentions to renew, the item itself does not. Therefore, it seemed appropriate adapt Plewa's (2005) approach and clearly highlight that not the actual renewal is of interest, but the willingness to work together in the future. Therefore, the item was adapted and rephrase, resulting in the following statement: "In view of your intentions, please indicate the likelihood that you will try to work again with [partner] in the future".

In line with the above considerations on the intentions to renew, the construct intentions to expand were operationalized as a one-item scale. Using the exact same structure, the statement differs only in terms of the verb used in the sentence ("ex-

pand” instead of “work again”) and the reference point (“business in general” instead of the partner). These adaptations resulted in the following scale used: “In view of your intentions, what are the chances that you will try to expand your relationships with business in general.”

Relationship characteristics

This research is focused on benevolence trust as a specific type of trust which refers to the intentions and motives of the trustee to do good to the trustor or to be concerned about the trustor, apart from the self-centred motives of the trustee (Mayer et al., 1995). Various scales can be found in literature for benevolence trust, either as part of trust constructs integrating affective, benevolence and / or integrity trust (e.g. Walter et al., 2000; Chiou et al., 2002; Ritter & Walter, 2012) or as part of constructs solely dedicated to benevolence trust (e.g. Mayer & Davis, 1999; Roberts et al., 2003; Moliner, 2009). This research adapted four items used by Mayer and Davis (1999) and Muthusamy and White (2005) to measure benevolence trust (see items in the table below). In line with the relationship level of the construct, the word “mutually” added to each statement.

Similar to benevolence trust, various scales can be found for commitment in general and calculative (or instrumental / continuance) commitment in particular. Characterised in this research as a rational calculation of the benefits and sacrifices with respect to the decision to continue or end a relationship, calculative commitment was operationalized based on both already existing scales (Allen & Meyer, 1990; Morgan & Hunt, 1994; Gundlach et al, 1995) as well as terms used in the measurement scale for value in this research (see the below table for details). In order to highlights the relationship level of the construct, each item start with “mutually”, followed by a statement referring to either a comparison between benefits and sacrifices or the result of such a comparison (e.g. “rewarding”, “positive contribution”).

| Construct / item | Based on |
|--|--|
| <i>Benevolence trust</i> <ul style="list-style-type: none"> • Mutually, we look for what is important to the other one in the relationship • Mutually, we are concerned about the other's welfare when making important decisions • Mutually, we would not knowingly do anything to hurt the other one • Mutually, we consider the needs of the other one as important • Mutually, we would go out of our way to help the other one | Mayer and Davis (1999); Muthusamy & White (2005) |
| <i>Calculative commitment</i> <ul style="list-style-type: none"> • Mutually, we invest time, energy and other resources as we think the relationship will generate more benefits than costs • Mutually, we are committed to the relationship as we are sure it will generate value • Mutually, we dedicate resources to this relationship on the assumption it will be rewarded • Mutually, we agree that the relationship deserves effort as the benefits will outweigh the disadvantages • Mutually, we work hard as we expect the relationship to make a positive contribution | Allen & Meyer (1990); Morgan & Hunt (1994); Gundlach et al. (1995); Items developed for the value construct in this research |

Table 14: Scales for Benevolence Trust and Calculative Commitment

In addition to benevolence trust and calculative commitment which were identified as key relationship characteristics in this study's literature review, the common understanding of expectations and the commonness of expectations were found out in the qualitative research step to play a major role in value creation in UIRs. Considering the lack of scales for the common understanding of expectations (respectively mutual understanding) as well as for the commonness of expectations (respectively shared/mutual goals) for the context of this research, existing scales have been combined with statements and definitions coming from literature in order to create a suitable item set for this study. The following table summarises the different scales for both constructs and highlights key sources having influences the respective scale item.

| Construct / item | Based on |
|--|---|
| <i>Common understanding of expectations (mutual understanding)</i> <ul style="list-style-type: none"> • In the relationship, [partner] and we know what the other one strives for • Both [partner] and we understand what outcomes the other party seeks in the relationship • The other's desires are clear to each party • Both [partner] and we are aware of what impact the other party wants the relationship to make | Cornelius & Boos (2003); Johnson & Lederer (2010); Biocca et al. (2011); Buchecker et al. (2013) |
| <i>Commonness of expectations (shared/mutual goals)</i> <ul style="list-style-type: none"> • The expected outcomes of this relationship are shared by both [partner] and us • [partner] and we are in total agreement about the ambitions of our relationship • We all agree on the impact the relationship should have • The results we expect correspond with those of [partner] | Morris et al. (1998); Tsai & Ghoshal (1998); Li (2005); Davis & Walker (2007); Chow & Chan (2008); Parra-Requena et al. (2010) |

Table 15: Scales for Common Understanding and Commonness of Expectations

To summarise, this research made use of existing literature in order to operationalize the various constructs of the conceptual model. The next section details how these scales will be measured.

4.3.4 Scales and Measurement

Next to the operationalization of constructs, researchers need to define the measurement scales they intent to use for each variable. Measurement scales can be understood as means aiming to capture the differences in respondent answers (O'Leary, 2004). Typically, literature distinguishes nominal, ordinal, interval and ratio measurement scales (Zikmund, 2003).

Nominal scales refer to the simplest scale with numbers just being assigned to represent different categories (Zikmund, 2003). An example of a nominal scale is gender with 1 possibly standing for male and 2 possibly standing for female. Ordinal scales attach a meaningful order to the measured items (Kinnear et al., 1993) with air travel classes being one example (economic, business, and first class). Interval scales build upon the idea of ordered items in ordinal scales as they use equidistant units without having an absolute zero point (Clow & James, 2013). An example of an interval scale is temperature. Lastly, ratio scales again can be regarded as interval scales with an absolute zero point (Clow & James, 2013). Age, for example, refers to an interval scale.

In this research, nominal scales are used for certain control variables and demographic data, such as country, relationship status (ongoing, terminated, on hold), the academic's role(s) in the relationship (researcher / consultant, or project manager / project responsible), type of organisation or the research fields an academic is active in. Other control variables and demographic data were measured with interval or ratio scales, for example the number of years involved in the UIR with a specific partner, the number of years involved in UIRs in general, the number of years having worked in the academic sector respective the business sector. Ordinal scales were used for the researcher's frequency of interaction with the partner (e.g. multiple times per week, about once per week, multiple times per month).

The majority of items in this research were measured using a seven-point Likert scale, ranging from "totally disagree" to "totally agree". The Likert scale is generally accepted to be ordinal in nature (Monette et al., 2013) as the items can be ordered, but are not perceived as equidistant as in the case of interval or ratio scales. Despite its ordinal nature, Likert scales are generally treated and accepted as (quasi) interval (Kinnear et al., 1993; Lukas et al., 2004) as it is expected that respondents perceive the distances between the statements as equal. This research followed the usage of Likert scales as quasi-interval and supported this view by adding number to the specific scale point. More precisely, "totally disagree" was assigned the number 1, and "totally agree" was assigned the number 7 with all items in between being numbered from 2 to 6. The usage of numbers thus indicates respondents the discussed equidistance, supporting the view on Likert scales as "quasi-interval" (Kinnear et al., 1993). Nearly all variables in the model are measured using a seven-point Likert scale: common understanding of expectations, commonness of expectations, trust, commitment (all relationship characteristics), the six different stakeholder values (university, business, the academic itself, the academic team, students, and society), as well relationship value, and WOM as relationship outcomes. Compared to this, relationship satisfaction was measured using a semantic differentiation scale (Baker & Crompton, 2000; Cole & Illum, 2006) where pairs of statements (e.g. unfavourable / favourable, or displeasing / pleasing) were given at the end of the two extremes points of a seven-point scale. Lastly, an eleven-point Juster scale (Juster, 1966), a probability scale commonly used for repurchase intentions (e.g. Day et al.,

1991; Seymour et al., 1994), was applied for measuring the likelihood of the academic to continue the relationship, as well as for measuring its likelihood to expand UIRs in general. The scale ranged from 0 (“No chance, almost no chance”) to 11 (“Certain, practically certain”).

With respect to the number of measurement points on a scale, various scholars discuss the appropriateness of five, seven, and nine-point approaches, amongst others (e.g. Lissitz & Green, 1975; Dawes, 2008). A seven-point Likert was deemed appropriate for this study due to two main reasons. First, as other scales with an odd number, the seven-point Likert scale provides a focal point (the middle point) so that respondents can stake a “neutral” position if they like. Second, seven points were seen as providing the optimal differentiation compared to five point scales providing too few options, and nine-point scales providing too many options, finally making it complex and thus time-consuming for respondents to decide. The usage of a seven-point was also regarded as appropriate for the usage in the UIR context given the various studies applying it in this context (e.g. Santoro & Saporito, 2003; Plewa, 2005; Todorovic & McNaughton, 2011).

To sum up, this research uses a variety of (types of) measurement scales, all being justified in this section. Having operationalized the constructs and discussed the measurement scales to be used in the study, the next section will detail sampling issues.

4.4 Sampling

As indicated in the previous section, this research aims to make use of a key informant approach (Patterson & Spreng, 2007) with academics acting as key informants on value creation in UIRs. In order to identify those academics to be surveyed (the sample), three main steps had to be performed, namely (1) the definition of the target population, (2) the determination of the sampling frame, and (3) the execution of the sampling process based on a prior selected sampling technique.

First, the target population of a study refers to all those elements (e.g. people) sharing a specific set of characteristics which make them suitable to support a study’s goals and objectives (Zikmund, 2003; Lukas et al., 2004). Similar to the characteristics discussed in the exploratory pre-study, this explanatory research step focuses

on academics in England who have been or are involved in UIRs. With respect to the focus of the interaction, the types of interaction were limited to collaborative research, contract research, staff mobility (placements) as well as consulting in order to put emphasis on those UIRs with an expected high degree of interaction as well as a medium to long-term focus. Lastly, as a result of the interviews undertaken and the stated importance of the value created for the academic team, only those academics able to respond on UIRs where an academic team was involved were considered.

Second, a sampling frame refers to a list of elements from which the final sample is drawn (Teddle & Tashakkori, 2009). This list differs in most studies from the target population as not all elements or the target population are accessible (Sim & Wright, 2000). As no list of academics who are or have been involved in UIRs and possessing the above mentioned characteristics (affiliated with an English institution, involves in specific UIR types) was found, this research took the websites of English universities as a starting point. In order to create a comprehensive list, the researcher and his support staff went through all university websites and extracted the names, affiliations and email addresses of the academics whereby only those academics with extractable email addresses were recorded. Overall, 59.863 academics were identified in this process.

As a result of the approach to create the sampling frame based on available information on university websites, the sampling frame can be expected to differ significantly from the target population. The difference might result from an overcoverage and / or undercoverage. With respect to overcoverage, it can be expected that not all academics in England are or have been involved in UIRs. Furthermore, among those having experience with UIRs, a fair percentage will not have worked in UIRs where an academic team was involved (e.g. those who have just done consultancy on their own). In addition, not all websites stated the exact job position so that the sampling frame potentially includes some administrative staff, such as team assistants. With respect to undercoverage it has to be noted that not all academics are listed on university websites. In addition, many university websites today hide the email addresses and only provide links to a contact form to avoid that robots collect the email addresses for spam purposes. Thus, even if academic profiles were found on the university's website, many were not added to the sampling frame as

no email address was identified. The Higher Education Funding Council for England (HEFCE, 2014) reported a total number of 125.900 staff with academic roles excluding low activity contracts at English universities on December 1st, 2012. Thus, about 48% of all academics were added to the sampling frame. Due to the above mentioned reasons, however, a significant undercoverage and overcoverage of the target population can be expected.

Third, based on various factors, such as defined target population and determined sampling frame, and the sample size required for statistical analysis, researchers need to select and apply a sampling technique (Shukla, 2008). Considering that a significant overcoverage (especially in terms of those academics which have not been involved in a team-based UIR) and a low response rate (due to the anticipated large number of survey invitation academics receive) could be expected, and a minimum of 200 responses for an analysis using SEM is suggested (Hoelter, 1983; Garver & Mentzer, 1999), it was deemed appropriate to integrate all academics listed in the sampling frame also in the sample to be surveyed. In other words, this research did not make use of a sampling technique, but considers the sampling frame and the sample as equal.

Following the discussion on this study's sampling procedure, the next section details the drafting and pre-testing of the questionnaire.

4.5 Drafting and Pre-Testing

Based on the scales outlined in the previous section, a questionnaire was developed in order to test the conceptual model and its hypotheses. In order to be as flexible as possible in the creation process, the web-based questionnaire was programmed from scratch by the researcher, a certificated information technology professional. The questionnaire development followed guidelines and principles of good research with respect to content, phrasing and order of questionnaire elements (Kinnear et al., 1993; Zikmund, 2003). This included the usage of simple language and careful selection of words in order to reduce measurement error (Zikmund, 2003; Veal, 2005). In addition to the creation of the web-based questionnaire, the email to be sent to potential survey respondents was already developed at an early stage. Despite following the guidelines and principles of good research, it was seen as crucial to test the survey as well as the email before sending it to the entire sample.

The pre-test consisted of three stages, starting in September 2012 after having received ethics approval from Coventry University. First, in addition to discussing the survey with the supervisory team, the questionnaire was sent to colleagues from different centres who research topics related to the one presented in this study. These included researchers from the Science-to-Business Marketing Research Centre at Münster University of Applied Sciences (Germany), the eArchitecture Lab at Constance University of Applied Sciences (Germany) and a colleague from The University of Adelaide (Australia). The first test phase resulted in minor changes of the questionnaire, primary with respect to the wording of some measures which had been adapted to the context of this survey. In the second test phase, the questionnaire was sent to a small sample of the target population, more precisely 20 key informants (academics) from England. Participants of this pre-test were asked to conduct the questionnaire and report on any difficulties, ambiguity or biases which might negatively affect the study (Page & Meyer, 2000; Zikmund, 2003). A total of six academics supported the pre-test and highlighted some unclear wording which was taken into account. The third pre-test phase included the sending of the questionnaire to 10.000 academics listed in the sample. The questionnaire was not sent to the entire sample at once as it was unclear if some scales (e.g. common understanding of expectations or commonness of expectations as the most adapted ones) would work out as expected. Therefore, it seemed appropriate to send out the survey to 10.000 participants first to be able to check the constructs' reliability before the remaining participants were invited. In November 2012, after having received the first 500 responses, the constructs were checked and provided evidence that the reliability of all constructs would be acceptable. As the response rate of the pre-test was expectedly low, the construct tests were also seen as an optimal way to shorten the questionnaire by taking out those measures which had to be dropped in the development of the one-factor congeneric models based on the preliminary data available (see section 5.2.3 for more information on the development of the one-factor congeneric models). Examples of scales taken out of the questionnaire include the fourth element of benevolence trust (see Table 13) or the last element stated in the list of scales for value (see section 4.3.3). As the third pre-test phase did not result in changes in the left over statements and questions, the data generated in this pre-test phase were integrated in the later analysis.

4.6 Data Collection

Following the successful drafting and pre-testing of the email and web-based questionnaire, the data collection started on December 10, 2012. Using the email template developed, individualised emails have been sent to the remaining 49.863 academics in the sample (in addition to the 10.000 emails already been sent out in the third phase of the pre-test). The data collection process ended on January 14, 2012 following an evaluation of the response numbers. In other words, no significant number of responses was expected, so that the survey was closed.

Following the web link provided in the email (see email in appendix 3), participants were directed to the landing page of the final web-based questionnaire (see appendix 4). On the landing page the participants were thanked again for taking part in the survey and the aims of the study, guidelines to fill out the questionnaire and contact information were presented. Furthermore, the participants' rights and information on confidentiality and anonymity were highlighted. Following the landing page, participants had to specify whether or not they are or have been involved in one or multiple types of the UIRs under study, namely contract research, collaborative research, staff mobility, and consulting. Those who were not or have not been involved in UIRs, were directed to a different set of questions (not part of this study). Those who had experience in working with business were asked on the following page to select one relationship they have been engaged in and to respond hereinafter only with regards to this very relationship. In order to facilitate that respondents provide answers on this very relationship, participants were able to state the name or acronym of the business partner (alternatively, they were asked to fill in "MY PARTNER"). This name was then integrated into many statements and questions in the questionnaire to reduce the measurement error which might occur due to a wrong reference point used by the respondents. In addition, the participants were asked if the relationship is ongoing, terminated or on hold and whether they were working alone in the relationship or in a team. Depending on the answers given to these two questions, the questions and statements used present or past tense, and either "I" or "we" when referring to the researcher respectively the academic team. Here it has to be noted that only those having worked in a team were considered for this study. Following this, some additional information on the relationship were asked before the survey guided the participants through the scales

presented in section 4.3.4. At the end of the survey, questions targeting demographic data (e.g. type of organisation or position in university) were presented before the participants were thanked again for their time and contribution to the study.

A number of strategies have been applied to foster those having received an email to take part in the survey (to click on the link in the email and proceed after having read the landing page of the survey website):

- Creation of individualised invitation emails, integrating not only the participants' names in the greeting but also the university name and, if applicable, the department, faculty or institute / research centre name in the email text
- Usage of a designed invitation email, including a banner with the logo of Coventry University as well as a picture of the researcher
- Design of a relatively short invitation email (as short as possible considering the required information on participant rights, confidentiality and anonymity)
- Provision of a professional web link, reflecting the focus on England (www.university-industry-survey.org.uk), and usage of a England-based phone number (forwarded to the German mobile phone of the researcher)
- Indication in the email how much time the filling of the survey requires
- Sending of the email from the researcher's email address at Coventry University in order to increase the trust of the academics invited
- Design of a relatively short introduction on the website's landing page, supported by a graphic which highlights the study's main aims
- Usage of the researcher's photo and signature to make the survey more personal

In addition, various strategies have been applied to ensure that respondents do not terminate the survey once started.

- Provision of a graphical progress-bar at the top of the website using the colour green for the percentage of the survey already done and red for the part still to come

- Continuous integration of the partner name in statements and questions so that the respondent felt more connected to the survey
- Adaption of the statements and questions with respect to the tense (current or past relationship), contributing to the readability of the survey items
- Provision of a feedback button supporting the respondents' perception that their opinion is valued

As indicated in section 4.4 the sample included contact details of 59.863 academics. Overall, 5.477 emails were not delivered to the receivers and returned to the sender, primary stating that the email account did not exist. Due to the high number of undelivered emails, a double check was performed whether a mistake was made in the data collection or email sending process, or if the email addresses stated on the website were just wrong or not existing anymore. All contact details have been found on the respective university websites, thus confirming the expected significant overrepresentation in the sample due to wrong or old email addresses.

Despite the large number of invalid email addresses, a total of 4505 responses have been gathered during the data collection phase. While the response rate was not considered high, the total number of responses was high enough for an analysis using SEM. Therefore, and to prevent that invited participants feel "spammed", potentially negatively impacting the image of Coventry University, the sending of 59.863 reminder emails (to the entire sample) was not seen as appropriate.

Following the discussion on how data was collected in this research, the next chapter will outline and justify the data analysis methods applied.

4.7 Data Analysis

Due to the existence of different analysis methods for explanatory research, an evaluation of these methods was necessary in order to identify the most appropriate one for this research. As outlined before, this research is interested in the causal relationship between the model constructs, so that multivariate analysis methods and specifically SEM became prominent in the evaluation process. The choice for SEM as the primary data analysis methods applied in this research was based on a consideration of its advantages and disadvantages, as outlined below.

With respect to the advantages of SEM, three key benefits stand out. First, SEM allows the testing of entire models (Steenkamp & Baumgartner, 2000), adding a “higher level perspective to the analysis” (Kline, 2011, p. 13). This characteristic of SEM was seen as important for this research as it aims to create a better understanding of value creation in UIR from a stakeholder and relationship perspective, a complex phenomenon which requires the consideration of various construct dependences. Second, compared to other multivariate methods, SEM enables to research relationships between latent (or unobservable) constructs which are indicated by multiple measures that are observable (Lei & Wu, 2007; Byrne, 2013). As this research integrates latent variables, this second benefit of SEM was considered valuable in the data analysis. Third, SEM allows to model relationships, nonlinearities and correlations across independent variables of a model, and to take into account both measurement and structural error, so that some researchers consider SEM to be more accurate compared to other multivariate analysis methods (Diamantopoulos & Siguaw, 2000; Martella et al., 2013).

While SEM provides various benefits, researchers also need to take into account the disadvantages or limitations of SEM when evaluating potential analysis methods. With a series of disadvantages of SEM being discussed in literature, two main issues were identified for this research, namely the required knowledge for correctly implementing SEM as well as the required sample size. First, Chin (1998) refers to a higher complexity level which has to be considered when applying SEM. As a result, the author states, researchers are required to possess “greater knowledge about the conditions and assumptions for appropriate usage” (Chin, 1998, p. vii). The complexity of SEM was seen as a disadvantage due to the researcher’s limited knowledge and experience in the application of SEM at the beginning of the study. However, given the wide range of possibilities to study SEM (workshops, online courses, text books etc.) and to get feedback from peers, it was seen as feasible for the researcher to address this issue by investing enough time and effort. Second, in addition to this knowledge-related limitation, a second major disadvantage of SEM can be outlined with respect to the required minimum sample size. Most researchers refer to a minimum sample size of 200 (Hoelter, 1983; Garver & Mentzer, 1999) with Barrett (2007) even recommending that the publication of SEM results with less than 200 samples should be rejected if the target population is not small itself.

As outlined above, various strategies were applied to ensure a sample size of 200 or more, including the invitation of the entire sampling frame to the study as well as approaches in the data collection phase aiming to increase the response rate.

Overall, it seems that consensus is reached that SEM has “substantial advantage over first-generation techniques such as principal components analysis, factor analysis, [...] or multiple regression because of the greater flexibility that a research has for the interplay between theory and data” (Chin, 1998, p. vii). Considering the advantages and disadvantages of SEM with a particular focus on SEM’s ability to test entire models, SEM was deemed as the most suitable analysis method for this study. For the implementation of SEM, IBM SPSS AMOS 20 was selected as it is a visual software program which is considered easy-to-use (Arbuckle, 2007), especially compared to software products which focus more on function and less on usability, such as LISREL.

In addition to using IBM SPSS AMOS 20 for SEM in this research, IBM SPSS Statistics 20 was used for descriptive analyses, primarily the characterisation of the final sample. Beyond that, the software was applied for data preparation purposes such as the treatment of missing values or estimation of construct reliability (more information on data preparation are provided in section 5.2).

In summary, this section justified the usage of SEM in this research and presented IBM SPSS AMOS 20 as the software applied. In addition, IBM SPSS Statistics 20 was selected for data preparation as well as descriptive analyses.

4.8 Chapter Summary

This chapter detailed the design of the quantitative research step of this study. In line with the overall research design as justified in chapter 3, a web-based questionnaire was presented as the most appropriate method for this explanatory research aiming to test the developed conceptual model and hypotheses. Following this, section 4.3 highlighted the questionnaire design development, starting with the different levels of theory, measurement and analysis. While the levels of theory and analysis correspond, this research makes use of a key informant approach as it was not deemed possible to generate data from all the different stakeholders integrated in

the study. Next to this, a discussion on formative and reflective measurement models was provided, and the reflective nature of all constructs was justified. Based on the reflective measurement approach taking in this study, the subsequent section outlined the operationalization of the central constructs used in this research before the Likert scale and the Juster scale were presented as the primary measurement scales in this research, concluding the questionnaire design section.

Taking into account the key informant approach with academics in England being the respondents, the target population and sample of the study were outlined next. The target population was defined as all England-based academics who are or have been involved in specific UIR types (contract research, collaborative research, mobility, and / or consulting) whereby a team of academics was engaged, not only the academic itself. As no list of academics who are or have been involved in UIRs and possessing the above mentioned characteristics has been found, the researcher visited all English university websites and created a list with contact details of England-based academics which potentially fit into this study. A total of 59.863 academics were identified in this process whereby a significant overcoverage (e.g. those academics not being involved in UIRs) and undercoverage (e.g. those academics whose email address is not listed on the university website) can be expected. Due to the expected overcoverage and undercoverage, as well as a predicted low response rate resulting from the large number of surveys delivered to academics, no sampling technique was applied. Rather, it was seen as appropriate to include all academics in the sampling frame in the sample.

Finally three different sections detailed drafting and pre-testing, data collection as well as data analysis. First, this study used a three-step approach to test the email to be sent out and the questionnaire to be answered, starting with feedback from peers, followed by a small pre-test among 20 England-based academics, and finally a larger-scale test to validate the scales used in the study. Succeeding the successful pre-test, email invitations were sent to the entire sample, resulting in a total of 4505 responses. Lastly, section 4.7 outlined information on the analysis of the data gathered with SEM being presented as the main analysis method.

Having justified the design of the quantitative research step, the following chapter will outline the preparation of the data, the final sample, as well as data analysis results with respect to the conceptual model and hypotheses. In addition,

further analysis results aiming to shed light on relationship outcome drivers are shown.

5. QUANTIATIVE RESEARCH RESULTS

5.1 Chapter Introduction

This research aims to contribute to our understanding of value creation in UIRs by developing and empirically testing a holistic model integrating a stakeholder and relationship perspective. The previous chapters have outlined the integration of the three main literature streams of this research, namely RM, ST and UIRs, and the development of a conceptual model based on the literature findings (chapter 2), the refinement of the model and development of hypotheses based on in-depth interviews undertaken among academics and KTT professionals (chapter 3) as well as the design of the explanatory research step which intends to test the model and hypotheses. Consequently, this chapter will present the results of the explanatory research step which has been implemented by means of a web-based questionnaire distributed to England-based academics with the generated data being analysed using SEM methods.

The next chapter section will describe the preparation of the data, including case selection, treatment of missing values and normality, as well as construct reliability and validity. In addition, the development of one-factor congeneric models for each construct is presented, a step taken to ensure well-fitting, parsimonious measurement models. Finally, model identification and goodness-of-fit indexes (incl. cut-off values) are discussed. Following the data preparation stage, the next section outlines the characteristics of the final sample which will be used for the analysis. Accordingly, this data analysis is the focus of the next two sections. Section 5.4 will portray SEM analysis results related to the conceptual model. More specifically, results for each hypothesis as well as for the prior introduced goodness-of-fit indexes are shown. In addition, the section outlines (re-specification) efforts made to improve model parsimony and model fit. Having discussed the results on the conceptual model and the developed hypotheses, with the relationship value concept taking centre stage, the next section addresses the question which stakeholder values drive the remaining relationship outcomes (satisfaction, WOM, intention to renew, and intention to expand) most. To answer this question, results for four path models (one for each relationship outcome) are presented before the chapter ends with a short summary.

5.2 Data Preparation

Prior to the analysis of the data gathered, the data was prepared. The following sections detail the selection of cases, the handling of missing values and non-normality, the development of one-factor congeneric models, as well as model identification and goodness-of-fit indexes.

5.2.1 Non-response Bias, Cases Selection, Missing Values and Normality

Following the identified risk of a non-response bias (see section 4.2), meaning that the responses of those not having answered the questionnaire would differ from the data gathered (Sax et al., 2003), two efforts were made to limit respectively identify a potential bias. First, various efforts were made to maximise the response rate so that the number of non-respondents decreases so that the non-response bias should principally be reduced (Armstrong and Overton, 1977). These efforts are documented in section 4.5 (drafting and pre-testing) and 4.6 (data collection).

Second, following Armstrong and Overton (1977), this research compared the data of early and late respondents in order to estimate non-response bias with respect to a “timing issue”. Early and late respondents were separated as follows: First, data of the pre-test was excluded from the analysis (108 responses). Second, those respondents who answered the survey in the first seven days were considered as early respondents (623 responses) and the remaining as late respondents (172 responses). IBM SPSS Statistics 20 was used to perform a Levene’s test for the equality of variances (Brosius, 2004) as well as a t-test for the evaluation of the equality of means (Coakes & Steed, 2003). The results are presented in appendix 5 and show no significant differences ($p < 0.05$ level) between the item values of early and late respondents, indicating that a non-response bias, at least with respect to a “timing issue”, cannot be assumed.

As the survey was send to all academics identified on English university websites, the data had to be cleaned from cases not representing the wanted target group. First, as this research also aims to investigate the value generated for the academic team, all cases where the academic was the only university representative in the relationship were deleted. Second, all cases were cleared which were not reported

by an academic affiliated with an English institution during the time of the relationship. Especially as the websites of universities are often not up to date and emails are forwarded, this step was important as academics might have moved to another job in another country and reported on cases without an English university involved. Third, all cases with 15 or more missing values ($> 20\%$ of the items used for this study) were deleted. Having performed the above described case selection, a total of 903 cases remained.

In the next step, missing values in the 903 cases of the final sample were replaced through the method “maximum likelihood estimation”, performed using IBM SPSS Statistics 20. Hair et al. (1998) characterise this method, which uses an iterative process, as the one producing the least bias, justifying the use of this method for this research.

Taking into account both the requirement of multivariate normality for SEM (Hair et al., 2010) as well as Byrne (2001)’s statement that most research lacks multivariate normality, it was regarded as crucial to assess normality by taking a closer look at the skewness and kurtosis values. While skewness and kurtosis have also been assessed using IBM SPSS Statistics 20 in the very beginning of the analysis phase, integrating all variables, this discussion is focused on those variables which were finally used in the test of the model. Appendix 6 shows the skewness and kurtosis values as provided by IBM SPSS AMOS 20. While some researchers recommend a threshold of ± 1 (Morgan et al., 2012), other recommend ± 1.5 (Hair et al., 2010) or even ± 2 (George & Mallery, 2010). Shevlin and Shevlin (2000, p. 74) put the different cut-off values into relation by stating that “if the skewness is greater than 1.0, but less than 2.0, you should be aware that it might be having an effect on your parameter estimates, but that it is probably OK. Finally, if the skewness statistic is greater than 2.0 you should begin to be concerned”. As the results in appendix 6 highlight, 17 out of 39 skewness values are outside of the ± 1 range with the remaining ones being inside that range. As the maximum skewness value is 1.468, however, the values are still acceptable. With respect to kurtosis, again 17 values are outside the ± 1.0 threshold with 5 even being higher than 1.5 and one of them even going beyond 2.0. With many critical ratio values (kurtosis) going beyond five, and four values even exceeding 10, it was deemed important to further explore the effect of and potential ways to limit non-normality.

While some scholars refer to asymptotic robustness theory (Amemiya and Anderson, 1988; Anderson and Amemiya, 1990) and that non-normality concerns can be neglected when having a large sample, others highlight that the conditions for applying the theory depend on the data and the model and that “it is not appropriate to blindly trust that a researcher’s given data and model satisfy these conditions” (Yuan et al., 2005, p. 254). Therefore, two approaches were implemented to address the impact of non-normality of the data on the analysis.

First, in order to address the potential effect of the data’s non-normality on the Chi-Square goodness-of-fit index (e.g. Hair et al., 1998; Hu and Bentler, 1995), Bollen-Stine bootstrapping was applied when using IBM SPSS AMOS 20. Bootstrapping refers to a technique that uses re-sampling methods to generate estimates of population distributions (Hair et al., 2010) and was thus chosen to deal with the non-normality of the data. The Bollen-Stine bootstrapping method was chosen as it is a “modified bootstrap method for the Chi-Square goodness-of-fit statistic” (Byrne, 2001, p. 284).

Second, in addition to the Chi-Square goodness-of-fit index a set of other fit indexes were used. These indexes included the recommended Comparative Fit Index (CFI) as well as the Normed Fit Index (NFI).

Having discussed non-response bias issues and outlined the procedures of data case selection, treatment of missing values and having outlined approaches to address non-normality of the data, the following section details construct reliability and validity.

5.2.2 Construct Reliability and Validity

Before analysing the path models and responding to the hypotheses, the reliability and validity of the constructs used in the model need to be evaluated.

Reliability refers to the absence of random errors in measurement (Zikmund, 2003) and thus consistency of scores when the test is repeated (Monette et al., 2002). The internal consistency of the constructs was assessed using the commonly accepted Cronbach’s alpha (α) (Cronbach, 1951). While various acceptance levels can be found in literature, values above 0.7 are considered reasonable with values closer to 1 showing a higher internal consistency (Nunnally & Bernstein, 1994).

Composite reliability (p_η), also called construct reliability, was assessed using the below formula, which makes use of item loadings (λ) and error variances (Fornell and Larcker, 1981).

$$p_\eta = \frac{(\sum_{i=1}^p \lambda_{yi})^2}{(\sum_{i=1}^p \lambda_{yi})^2 + \sum_{i=1}^p \text{Var}(\varepsilon_i)}$$

The following table summarises the results of the calculations of Cronbach's alpha (using IBM SPSS Statistics 20) and composite reliability (using Microsoft Excel). The table also highlights the shortcuts of the constructs which are used throughout the study and in the appendix.

| Construct | Shortcut | No. of items | α | p_η |
|--------------------------------------|-----------|--------------|----------|----------|
| Common Understanding of Expectations | ComUndExp | 3 | .917 | .917 |
| Commonness of Expectations | ComExp | 3 | .886 | .889 |
| Commitment | Com | 4 | .944 | .970 |
| Value for Academic | ValAcad | 3 | .965 | .965 |
| Value for Academic Team | ValTeam | 3 | .967 | .969 |
| Value for University | ValUni | 3 | .967 | .967 |
| Value for Students | ValStu | 3 | .985 | .985 |
| Value for Business | ValBus | 3 | .941 | .942 |
| Value for Society | ValSoc | 3 | .974 | .974 |
| Overall Relationship Value | RelVal | 3 | .968 | .968 |
| Relationship Satisfaction | Sat | 3 | .960 | .961 |
| Word of Mouth | WOM | 3 | .965 | .965 |

Table 16: Reliability Scores

The results highlight the constructs' high internal consistency and composite reliability. *Except Commonness of Expectations*, all constructs score higher than 0.9 with most even providing values higher than 0.95.

Validity refers to the extent to which we measure what we hope/think we measure, and accordingly what we hope/think we do not measure (Kline, 2005). Common approaches of assessing construct validity include (1) face/content validity, (2) convergent validity, (3) discriminant validity and (4) nomological validity (e.g. Page and Meyer, 2000).

First, face/content validity refers to the extent to which the measurement is subjectively considered appropriate for the purpose it is used for (Zikmund, 2003). In this research, face/content validity was achieved by carefully assessing and selecting the right research method, by developing the measurement scales based on existing literature and testing the data collection instrument through a pre-test.

Second, convergent validity, also known as concurrent validity or criterion validity, is given when measures which are supposed to be correlate are in fact correlated (Zikmund, 2003). As all constructs in this research were conceptualised as reflective, all measures of a construct were supposed to correlate. The next section highlights the one-factor congeneric models and shows that the factor loading for each item exceeds the value of 0.75, and is thus much higher than the recommended minimal value of 0.5 (Fornell and Larcker, 1981). In addition, the Average Variance Extracted (AVE) was used to assess convergent validity and was calculated based on the below formula (Fornell and Larcker, 1981).

$$p_{vc(\eta)} = \frac{\sum_{i=1}^p \lambda_{yi}^2}{\sum_{i=1}^p \lambda_{yi}^2 + \sum_{i=1}^p \text{Var}(\varepsilon_i)}$$

Convergent validity is given if the $pvc(\eta)$ value is higher than 0.5 as it shows that the measurement items account for a notable larger degree of variance (VAR) than the measurement error (Fornell & Larcker, 1981). The subsequent table reports on the $pvc(\eta)$ values and shows that all values lie above 0.7, thus exceeding the 0.5 recommendation and proving convergent validity for all constructs used in this study.

Third, discriminant validity, or divergent validity, is given when measures that should not be related, are in fact not related (Page & Meyer, 2000). Given that this research uses various constructs (e.g. trust, commitment, satisfaction) which have been found in previous research to generate multicollinearity problems due to the correlations between them (Plewa, 2005; see also the correlations between constructs in appendix 7), assessing discriminant validity was considered important for the validity of this study's results. As stated for example by Fornell and Larcker (1981), discriminant validity is given when the shared variance (λ^2), and thus the squared correlation between constructs, is lower than the AVE as calculated earlier.

The results showed that discriminant validity was given for all constructs expect for trust whose highest shared variance (with commitment) was larger than the AVE. As a result, trust had to be eliminated from the model.

The following table shows the results after eliminating trust from the model and compares the highest shared variance (Highest λ^2) with the AVE value for each of the twelve remaining constructs used in this study.

| Construct | | $\rho_{\text{ve}(\eta)}$ (AVE) | Highest λ^2 |
|--------------------------------------|-----------|-----------------------------------|---------------------|
| Common Understanding of Expectations | ComUndExp | .789 | .638 |
| Commonness of Expectations | ComExp | .727 | .638 |
| Commitment | Com | .895 | .554 |
| Value for Academic | ValAcad | .903 | .572 |
| Value for Academic Team | ValTeam | .911 | .511 |
| Value for University | ValUni | .907 | .411 |
| Value for Students | ValStu | .956 | .213 |
| Value for Business | ValBus | .844 | .275 |
| Value for Society | ValSoc | .926 | .278 |
| Overall Relationship Value | RelVal | .910 | .624 |
| Relationship Satisfaction | Sat | .892 | .624 |
| Word of Mouth | WOM | .902 | .329 |

Table 17: Convergent and Discriminant Validity Scores

As shown in the table, the AVE exceeds the highest shared variance (λ^2) in all cases, thus demonstrating discriminant validity for all model constructs.

Fourth, nomological validity is given when theoretically related but different constructs are found to be related in the empirical analysis (Lukas et al., 2004). As an example, a higher satisfaction level was found to be related with a higher level of the academic's perceived relationship value, confirming expectations which were based on previous literature.

Given reliability and validity for 12 constructs used in this study, the following section outlines the one-factor congeneric measurement models used in the path model.

5.2.3 One-factor Congeneric Models

Except for the two measures intention to renew and intention to expand which were both measured using a one-item measurement scale, each construct used in this research was conceptualised as a reflective construct measured through a set of four to five items in the questionnaire. In order to develop highly fitted, parsimonious measurement models, the theoretically developed constructs were re-specified taking into account both the empirical results but also theoretical considerations. First, to ensure convergent validity, all items with factor loading lower than 0.5 have been eliminated. Second, goodness-of-fit and parsimony indexes, as shown in section 5.2.4, were then used to achieve well-fitting, parsimonious measurement model. With the estimation of measurement models requiring degrees of freedom (df) above zero, meaning more observations than free parameters, the variance of two residual was set equal for those models with only three items left. Using pair-wise parameter comparisons reported by IBM AMOS 20, this process had to be performed for all models except for commitment which was build based on four measurement items.

The following figures show the questions as asked in the survey, the factor loadings for each item as well as the goodness-of-fit and parsimonious index for each model. As discussed above, Bollen-Stine bootstrapping with 500 bootstrap samples was applied.

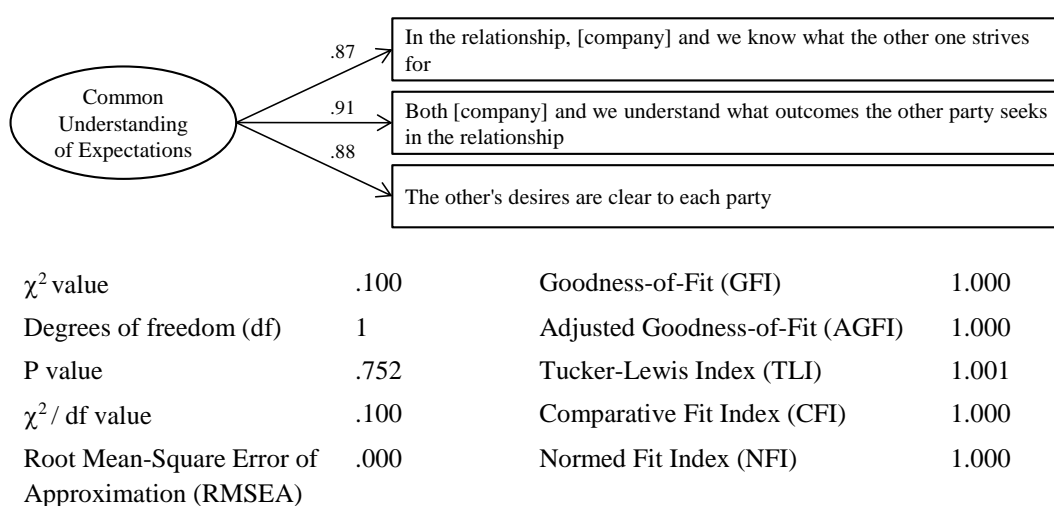
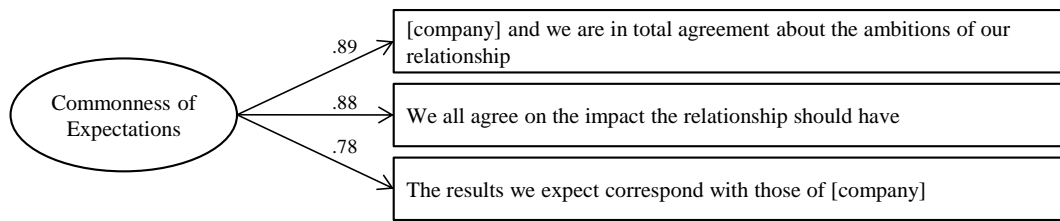
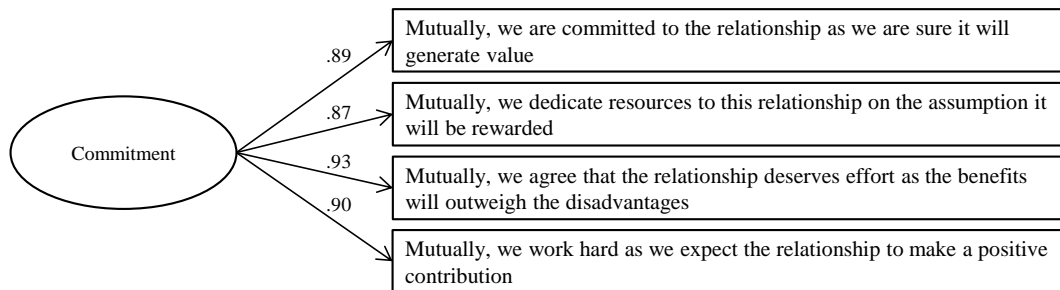


Figure 8: Congeneric Model – Common Understanding of Expectations



| | | | |
|---|------|---------------------------------|-------|
| χ^2 value | .032 | Goodness-of-Fit (GFI) | 1.000 |
| Degrees of freedom (df) | 1 | Adjusted Goodness-of-Fit (AGFI) | 1.000 |
| P value | .857 | Tucker-Lewis Index (TLI) | 1.002 |
| χ^2 / df value | .032 | Comparative Fit Index (CFI) | 1.000 |
| Root Mean-Square Error of Approximation (RMSEA) | .000 | Normed Fit Index (NFI) | 1.000 |

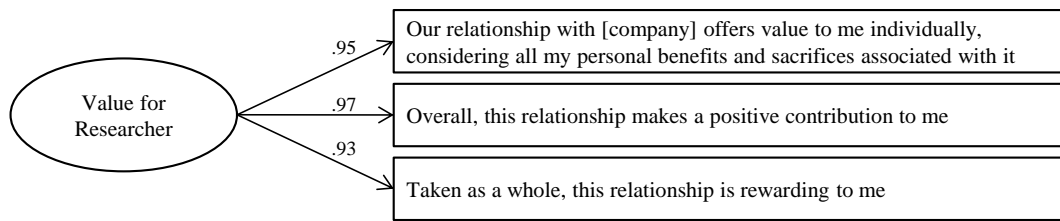
Figure 9: Congeneric Model – Commonness of Expectations



| | | | |
|---|-------|---------------------------------|-------|
| χ^2 value | 1.307 | Goodness-of-Fit (GFI) | .999 |
| Degrees of freedom (df) | 2 | Adjusted Goodness-of-Fit (AGFI) | .996 |
| P value | .520 | Tucker-Lewis Index (TLI) | 1.001 |
| χ^2 / df value | .654 | Comparative Fit Index (CFI) | 1.000 |
| Root Mean-Square Error of Approximation (RMSEA) | .000 | Normed Fit Index (NFI) | 1.000 |

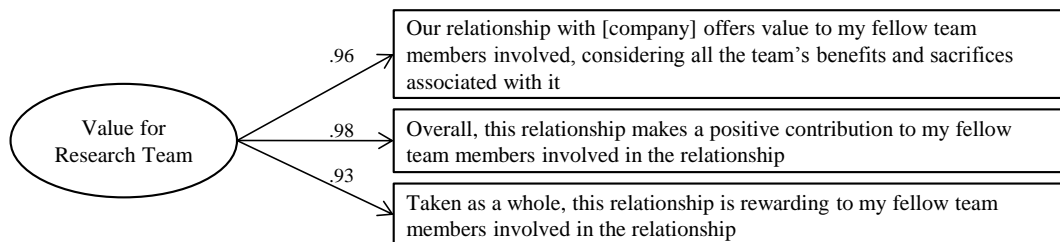
Figure 10: Congeneric Model – Commitment

As presented above, all three relationship characteristics used in this research, namely *Common Understanding of Expectations*, *Commonness of Expectations*, and *Commitment*, show an acceptable fit in terms of goodness-of-fit indexes. However, while the χ^2 / df values of all models are lower than the recommended value of 3, all are also lower than 1, showing an overfit of the model. Taking into account the effect of sample size on the χ^2 value and thus also on χ^2 / df value, and recognising that all other indexes as well as reliability scores (see section 5.2.2) have shown appropriate results, the models were considered suitable for further analysis.



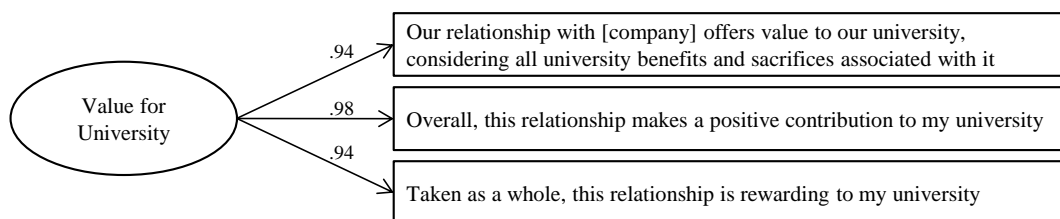
| | | | |
|---|------|---------------------------------|-------|
| χ^2 value | .371 | Goodness-of-Fit (GFI) | 1.000 |
| Degrees of freedom (df) | 1 | Adjusted Goodness-of-Fit (AGFI) | .998 |
| P value | .543 | Tucker-Lewis Index (TLI) | 1.001 |
| χ^2 / df value | .371 | Comparative Fit Index (CFI) | 1.000 |
| Root Mean-Square Error of Approximation (RMSEA) | .000 | Normed Fit Index (NFI) | 1.000 |

Figure 11: Congeneric Model – Value for the Academic



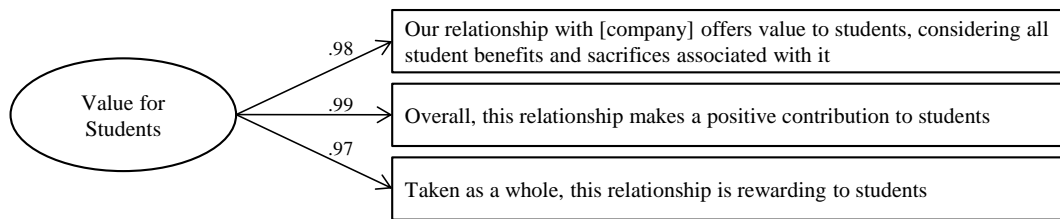
| | | | |
|---|-------|---------------------------------|-------|
| χ^2 value | 1.242 | Goodness-of-Fit (GFI) | .999 |
| Degrees of freedom (df) | 1 | Adjusted Goodness-of-Fit (AGFI) | .995 |
| P value | .265 | Tucker-Lewis Index (TLI) | 1.000 |
| χ^2 / df value | 1.242 | Comparative Fit Index (CFI) | 1.000 |
| Root Mean-Square Error of Approximation (RMSEA) | .016 | Normed Fit Index (NFI) | 1.000 |

Figure 12: Congeneric Model – Value for Academic Team



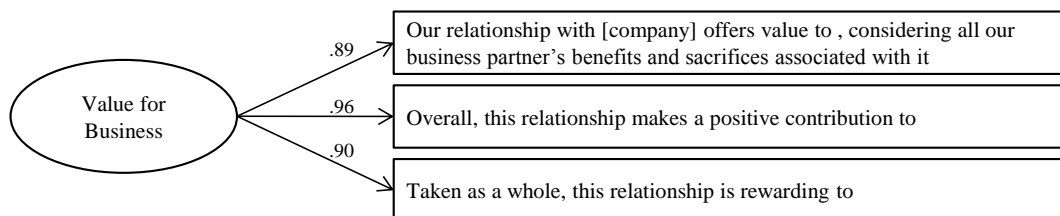
| | | | |
|---|------|---------------------------------|-------|
| χ^2 value | .217 | Goodness-of-Fit (GFI) | 1.000 |
| Degrees of freedom (df) | 1 | Adjusted Goodness-of-Fit (AGFI) | .999 |
| P value | .641 | Tucker-Lewis Index (TLI) | 1.001 |
| χ^2 / df value | .217 | Comparative Fit Index (CFI) | 1.000 |
| Root Mean-Square Error of Approximation (RMSEA) | .000 | Normed Fit Index (NFI) | 1.000 |

Figure 13: Congeneric Model – Value for University



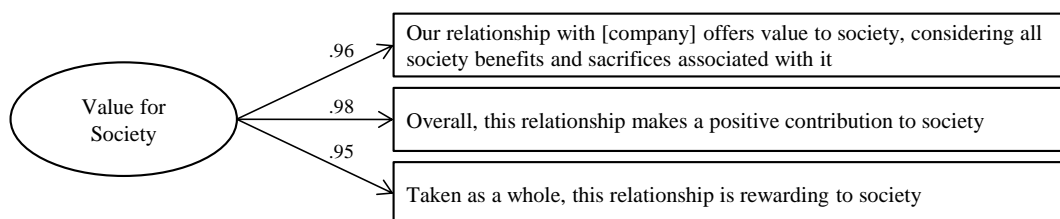
| | | | |
|---|------|---------------------------------|-------|
| χ^2 value | .838 | Goodness-of-Fit (GFI) | .999 |
| Degrees of freedom (df) | 1 | Adjusted Goodness-of-Fit (AGFI) | .996 |
| P value | .360 | Tucker-Lewis Index (TLI) | 1.000 |
| χ^2 / df value | .838 | Comparative Fit Index (CFI) | 1.000 |
| Root Mean-Square Error of Approximation (RMSEA) | .000 | Normed Fit Index (NFI) | 1.000 |

Figure 14: Congeneric Model – Value for Students



| | | | |
|---|-------|---------------------------------|-------|
| χ^2 value | 1.395 | Goodness-of-Fit (GFI) | .999 |
| Degrees of freedom (df) | 1 | Adjusted Goodness-of-Fit (AGFI) | .994 |
| P value | .237 | Tucker-Lewis Index (TLI) | 1.000 |
| χ^2 / df value | 1.395 | Comparative Fit Index (CFI) | 1.000 |
| Root Mean-Square Error of Approximation (RMSEA) | .021 | Normed Fit Index (NFI) | .999 |

Figure 15: Congeneric Model – Value for Business



| | | | |
|---|------|---------------------------------|-------|
| χ^2 value | .159 | Goodness-of-Fit (GFI) | 1.000 |
| Degrees of freedom (df) | 1 | Adjusted Goodness-of-Fit (AGFI) | .999 |
| P value | .690 | Tucker-Lewis Index (TLI) | 1.001 |
| χ^2 / df value | .159 | Comparative Fit Index (CFI) | 1.000 |
| Root Mean-Square Error of Approximation (RMSEA) | .007 | Normed Fit Index (NFI) | 1.000 |

Figure 16: Congeneric Model – Value for Society

In line with the statistics for the relationships characteristics models, the six models above also show adequate goodness-of-fit statistics with four models, namely *Value for Academic*, *Value for University*, *Value for Students*, and *Value for Society*, indicating a model overfit. Nevertheless, following the justification above, all models were considered appropriate for further analysis.

Notably, the models show that the same three out of the four measures used in the survey were selected in order to achieve a well-fitting model for each of the six constructs.

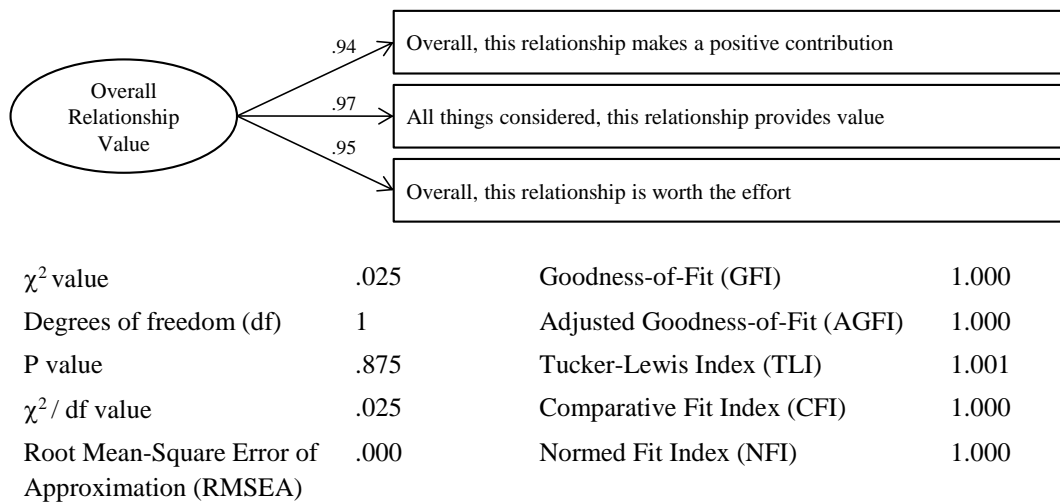


Figure 17: Congeneric Model – Overall Relationship Value

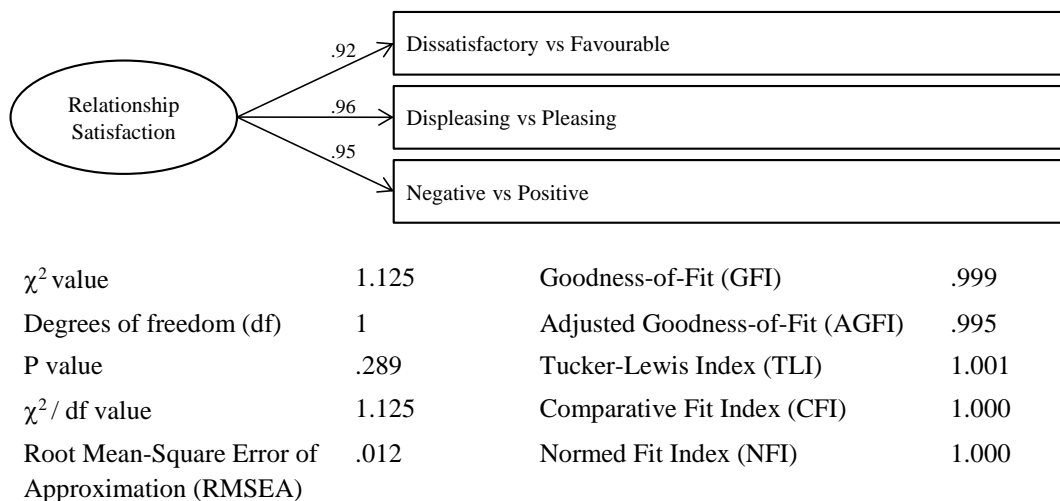
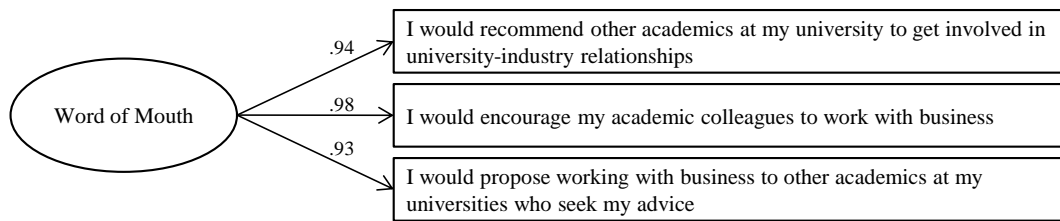


Figure 18: Congeneric Model – Relationship Satisfaction



| | | | |
|---|------|---------------------------------|-------|
| χ^2 value | .687 | Goodness-of-Fit (GFI) | .999 |
| Degrees of freedom (df) | 1 | Adjusted Goodness-of-Fit (AGFI) | .997 |
| P value | .407 | Tucker-Lewis Index (TLI) | 1.000 |
| χ^2 / df value | .687 | Comparative Fit Index (CFI) | 1.000 |
| Root Mean-Square Error of Approximation (RMSEA) | .000 | Normed Fit Index (NFI) | 1.000 |

Figure 19: Congeneric Model – Word of Mouth

Also the models belonging to the set of relationship outcomes, namely *Overall Relationship Value*, *Relationship Satisfaction* and *Word of Mouth*, demonstrate acceptable goodness-of-fit statistics while two again show a model overfit. This consistency of adequate goodness-of-fit statistics in combination with model overfit being the only issue might be an indicator that the cause does not lay on construct level, but rather on a higher level, providing support for the argumentation that the sample size has an effect on the χ^2 value.

To summarise, all twelve one-factor congeneric measurement models show an acceptable fit based on goodness-of-fit statistics. The overfit of some models has been highlighted and justified by the large sample used for this study. Thus, all models are considered appropriate for further analysis.

5.2.4 Model Identification and Goodness-of-Fit Indexes

A basic requirement of SEM is that a model is identified, meaning that a single, unique solution can be obtained for every free parameter based on the observed data. According to Bagozzi and Baumgartner (1994, p. 390), a “model is said to be identified if all its freely estimated parameters are identified, that is, if it is impossible for two distinct sets of parameter values to yield the same population variance covariance matrix“. Three types of model identification can be differentiated, namely underidentified, just identified, and overidentified models. An *underidentified* model refers to a model where there are more “unknowns” than the number of

equations (the “knowns”), meaning that an infinite number of solutions can be generated. In contrast, a *just identified* model is one with as many “knowns” as “unknowns”, resulting in one unique solution. However, while these models are identified, it has to be noted that just identified models always result in a perfect model fit. Thus, a just identified model is not appropriate for this research. Lastly, *overidentified* models refer to those models where multiple solutions can be generated for at least one parameter. An overidentified model has a positive degrees of freedom ($df > 0$) and allows the researcher to estimate the fit of the model (e.g. through the Chi-square statistic and other fit indices).

All models used in this research are *overidentified* and thus allow model fit testing. The below table summarises the computation of degrees of freedom for the conceptual model, as provided by IBM SPSS AMOS 20.

| | |
|--|-----|
| Number of distinct sample moments: | 780 |
| Number of distinct parameters to be estimated: | 98 |
| Degrees of freedom (780 - 98): | 682 |

Table 18: Computation of Degrees of Freedom for the Conceptual Model

Having discussed the requirement of an overidentified model, fit indexes are needed to assess model fit. Due to the impact of factors such as sample size and non-normality on the χ^2 statistics (Hair et al., 1998; Hu & Bentler, 1995), a variety of indexes frequently used in literature and reported by IBM SPSS AMOS 20 have been used. In view of the sample size of the data set used for this study ($n=903$) and non-normality issues (see section 5.2.1), the implementation of different indexes was seen as crucial for this research.

The following table summarises these indexes including abbreviation, type (absolute, incremental and parsimony fit index) and acceptance levels.

| Name | Abbreviation | Type | Acceptance level |
|---|---------------|---------------------------------|---------------------------|
| Chi-Square | χ^2 | Model Fit | $p > 0.05$ |
| Normed Chi-Square | χ^2 / df | Absolute Fit Model Parsimony | $1.0 < \chi^2 / df < 3.0$ |
| Goodness-of-Fit | GFI | Absolute Fit | GFI > 0.90 |
| Adjusted Goodness-of-Fit | AGFI | Absolute Fit | AGFI > 0.90 |
| Root Mean-Square Error of Approximation | RMSEA | Absolute Fit | RMSEA < 0.05 |
| Tucker-Lewis Index | TLI | Incremental Fit | TLI > 0.95 |
| Comparative Fit Index | CFI | Incremental Fit | CFI > 0.95 |
| Normed Fit Index | NFI | Incremental Fit | NFI > 0.95 |
| Consistent Akaike Information Criterion | CAIC | Model Parsimony | No defined level |

Table 19: Summary of Fit Indexes (Plewa, 2005, p. 147)

The table does not show an acceptance level for the Consistent Akaike Information Criterion (CAIC) as the index is a comparative measure which does not have a fixed acceptance level, but rather shows higher model parsimony when the CAIC value decreases (e.g. a re-specified model shows higher parsimony when its CAIC value is lower than the CAIC value of the original model).

5.3 Final Sample

The final sample used in this research contains 903 responses. As described in section 4.6, a total of 59.863 academics at English universities have been contacted via email with more than 5.000 emails returning as “not delivered”. Of all those invited, 4505 responded to the survey with 2546 being or having been involved in UIRs, while the remaining 1959 academics have not yet been engaged with business. From those 2546 UIR experienced academics about half (1274) reported on a relationship with business where an academic team was involved from the university side. The other half (1272) reported on cases with only the responding academic itself being working with the business. As this research aims to investigate value creation in UIRs where an academic team is involved, the latter were excluded from the final sample. Lastly, all those not having responded on a UIR with an English university as well as those with 15 or more missing values (see section 5.2.1) were eliminated, resulting in a final sample of 903 responses.

The final sample shows several characteristics which are presented below as they might need to be considered when interpreting the results. The next paragraph highlights some of the relationship characteristics while the subsequent paragraph focuses on characteristics of the organisation and the individual who responded.

First, the average relationship age, as reported by the respondents, is around four years. As many publicly funded research projects are three years or less, this might be an indicator that the relationships are either not based on publicly funded projects or go beyond a single project. In light of the relationship status (61.6% are still on-going), the relationship age might also be interpreted as longer-term relationships. Second, most relationships reported on are linked to the so called "hard sciences" which include natural sciences and mathematics, biomedical sciences, and technological sciences. A significantly lower number of relationships are related to the "soft sciences" which include humanities and social sciences in this research's classification. Third, analysis results show that only around one quarter interact with their partner once or multiple times per week. The other three quarters are nearly equally split over communication "multiple times per month" (27.2%), "about once per month" (25.0%) and "less than once per month" (23.0%). Fourth, with respect to the extent of activity in the relationship, respondents were primarily engaged in collaborative research (5.01), followed by contract research (4.29) and consulting (3.55). Staff mobility was reported only with 2.10 on a scale from 1 to 7 where 1 represented no collaboration in this activity at all and 7 a large extend of collaboration. This low extend of staff mobility might partly explain the rather low communication frequency presented earlier as the communication generally increases with the integration of staff and activities. Lastly, the results show that many respondents have multiple roles in the relationship. More precisely, around 80% are involved as a researcher while 40% are (also) managing the project.

The following table summarises the characteristics of the relationships reported on by the 903 survey respondents.

| Relationship Status | <i>On-going</i> | | <i>Terminated</i> | <i>On hold</i> | <i>MV</i> | |
|--|--------------------------------|----------------------------|---|-----------------------------|---------------------------------|-----------|
| N | 556 | | 294 | 53 | 0 | |
| % (n=903) | 61.6% | | 32.6% | 5.9% | 0.0% | |
| Relationship Age (n=899) | Mean | | Min | Max | Std. Deviation | |
| | 4.02 | | < 1 year | 30 years | 4.37 | |
| Research Field in Relationship^{MAP} | <i>Humanities</i> | <i>Social Sciences</i> | <i>Natural Sciences & Mathematics</i> | <i>Biomedical Sciences</i> | <i>Technological Sciences</i> | <i>MV</i> |
| N | 48 | 249 | 154 | 280 | 335 | 5 |
| % (n=903) | 5.3% | 27.6% | 17.1% | 31.0% | 37.1% | 0.6% |
| Com. Frequency | <i>Multiple times per week</i> | <i>About once per week</i> | <i>Multiple times per month</i> | <i>About once per month</i> | <i>Less than once per month</i> | <i>MV</i> |
| N | 115 | 108 | 246 | 226 | 208 | 0 |
| % (n=903) | 12.7 | 12.0 | 27.2 | 25.0 | 23.0 | 0 |
| Extend of activity | | <i>Mean</i> | <i>Min</i> | <i>Max</i> | <i>Std. Dev.</i> | |
| Collaborative Research (n=857) | | 5.01 | 1 | 7 | 2.01 | |
| Contract research (n=828) | | 4.29 | 1 | 7 | 2.36 | |
| Mobility (n=753) | | 2.10 | 1 | 7 | 1.67 | |
| Consulting (n=814) | | 3.55 | 1 | 7 | 2.23 | |
| Academic's position in relationship^{MAP} | | <i>Researcher</i> | <i>Project Manager</i> | <i>Other</i> | <i>MV</i> | |
| N | | 729 | 367 | 69 | 12 | |
| % (n=903) | | 80.7% | 40.6% | 7.6% | 1.3% | |
| <i>Legend: MAP = Multiple Answers Possible</i> | | | | | | |

Legend: MAP = Multiple Answers Possible

Figure 20: Relationship Characteristics of Sample

With respect to personal and organisational characteristics of the sample it can be stated that most respondents work at a university (94.5%) and have a researcher / lecturer (30.9%), senior researcher / lecturer (33.3%) or professor role (17.3%). Around 10% of the respondents (also) manage an institute or centre with 2.7% (also) heading a faculty or department. With only a few respondents involved in the management of the university or a university unit, and only a few holding junior positions, the respondents can be characterised as being in the middle of the university hierarchy. With respect to business roles held by the academics surveyed it can be said that the majority is not involved in any business activity at all (only 285 respondents indicated a business role). Those who reported a business role, however, hold on average 1.31 roles, with freelancer roles and advisory board member

(and similar) roles being the most stated ones. Lastly, the survey also contained questions on the academic's experience in terms of years working at university, in a business, and in UIRs. On average, respondents worked – at the time of the survey taken – on average 11.6 years at university and 7.2 years in business (with the business role being the main job). As the below table shows, respondents reported 7.4 years of experience in UIRs, meaning that they were involved in UIRs more than half of the time working at the university. Based on this fact and in addition to the years of experience working in the business world, the surveyed academics can be considered as knowledgeable about the business sector.

The following table extends the above presentation of personal and organisational characteristics by providing exact statistics.

| Organisation Type | <i>University</i> | | <i>University college</i> | | <i>Other</i> | | <i>MV</i> | |
|---------------------------------------|----------------------------|-----------------------|----------------------------|------------------------------|---------------------------------|-------------------------------|------------------|-----------|
| N | 853 | | 26 | | 16 | | 8 | |
| % | 94.5 | | 2.9 | | 1.8 | | 0.9 | |
| University roles^{MAP} | <i>Junior Res. / Lect.</i> | <i>Res. / Lect.</i> | <i>Senior Res. / Lect.</i> | <i>Prof.</i> | <i>Institute / Centre Mgmt.</i> | <i>Head of Faculty / Dep.</i> | <i>Other</i> | <i>MV</i> |
| N | 66 | 279 | 301 | 156 | 90 | 24 | 50 | 50 |
| % (n=903) | 7.3% | 30.9% | 33.3% | 17.3% | 10.0% | 2.7% | 5.5% | 5.5% |
| Business roles^{MAP} | <i>Free-lancer</i> | <i>Business Owner</i> | <i>Employee</i> | <i>Advisory Board Member</i> | <i>Other</i> | <i>None</i> | <i>MV</i> | |
| N | 99 | 48 | 69 | 119 | 39 | 506 | 112 | |
| % (n=903) | 11.0% | 5.3% | 7.6% | 13.2% | 4.3% | 56.0% | 12.4% | |
| Experience | <i>N</i> | <i>Mean</i> | | <i>Min</i> | <i>Max</i> | | <i>Std. Dev.</i> | |
| Years working at university | 890 | 11.6 years | | < 1 year | 50 | | 9.58 | |
| Years working in business | 476 | 7.2 years | | < 1 year | 42 | | 7.64 | |
| Years of experiences in UIRs | 886 | 7.4 years | | < 1 year | 40 | | 7.43 | |

Legend: MAP = Multiple Answers Possible

Figure 21: Personal and Organisational Characteristics of Sample

Having presented relationship, personal and organisational characteristics of the sample, the next section will detail the

5.4 Data Analysis - Path Model

This section details the analysis results of the path model, including hypotheses support and model re-specification.

5.4.1 Hypotheses Support

The refined conceptual model and the developed hypotheses (see section 3.5) were tested using IBM SPSS AMOS 20. The figure below shows key results of this analysis.

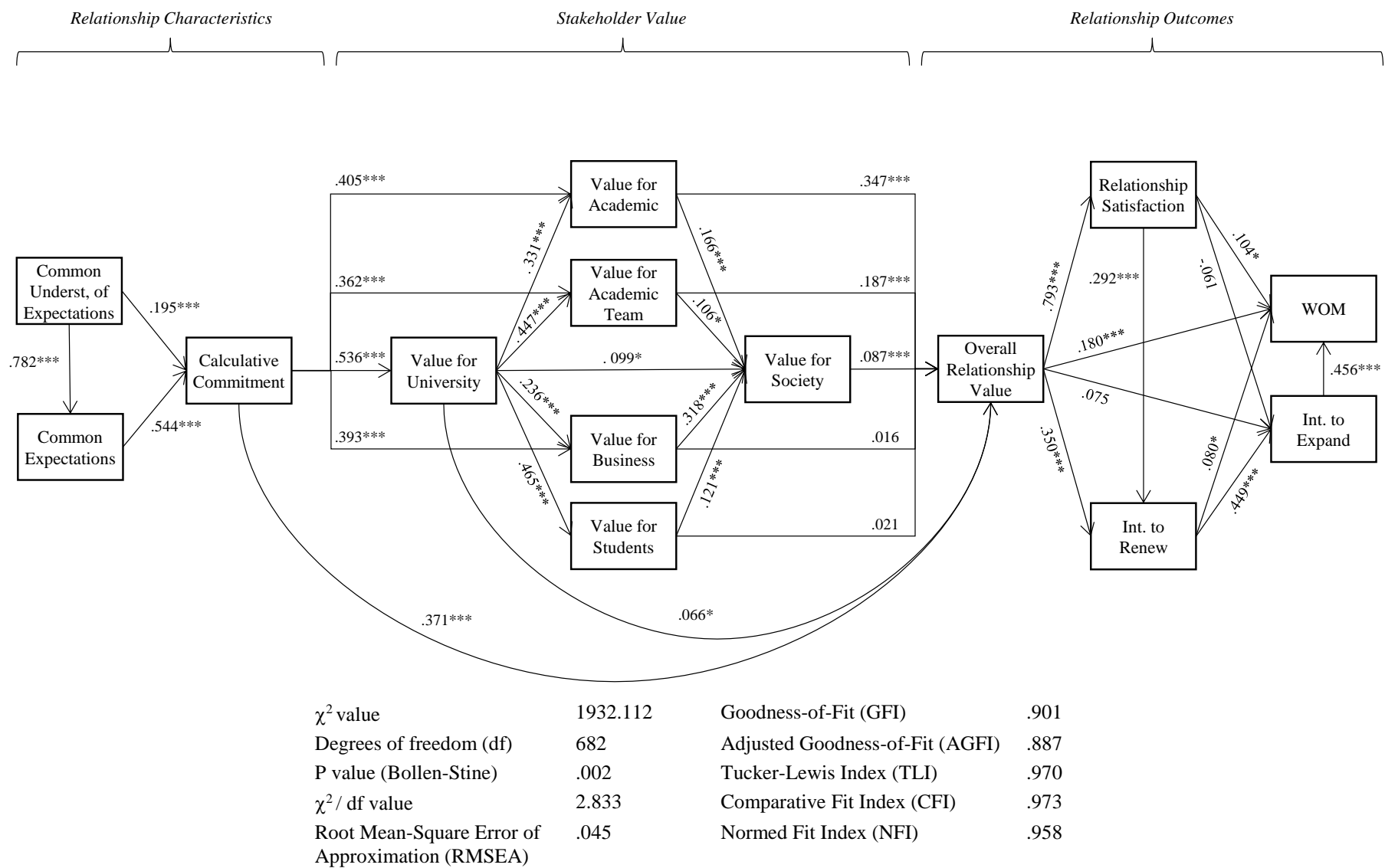


Figure 22: Path Model

While the conceptual model was developed based on an integration of literature on RM, ST and UIRs, and re-specified after the qualitative research step, not all fit indexes reached the acceptance level. More precisely, the χ^2 / df value ($=2.833$), RMSEA ($=0.045$), GFI (9.01), TLI (9.70), CFI (9.73) and NFI (9.58) showed a satisfactory fit while this was not supported by a significant χ^2 ($p < 0.05$) and a low AGFI value ($=0.887$). The low p-value might be explained by the large sample size ($n=903$) in this research. As stated by Bortz and Lienert (2008), large samples often result in p-values below 0.05 as small differences are significant. Overall, considering that most indexed show a satisfactory fit, hypotheses testing was deemed appropriate.

The following table summarises the path coefficients and the support of hypotheses. It has to be noted that not results for the hypotheses H2a, H2c, H3, H4a-d, and H5 are not shown as the trust construct had to be excluded from the model due to the issues with discriminant validity as outlined in section 5.2.2.

| Hyp. | Independent variable | Dependent variable | Standardized Effects | | | Critical Ratio | Hyp. Sup. |
|------|------------------------------|----------------------|----------------------|----------|-------|----------------|-----------|
| | | | Direct | Indirect | Total | | |
| H1 | Common Understanding of Exp. | Commonness of Exp. | .782 | - | .782 | 27.260*** | YES |
| H2b | Common Understanding of Exp. | Commitment | .195 | .426 | .621 | 3.982*** | YES |
| H2d | Commonness of Exp. | Commitment | .544 | - | .544 | 10.478*** | YES |
| H6a | Commitment | Value for Academic | .405 | .178 | .582 | 12.241*** | YES |
| H6b | Commitment | Value for Acad. Team | .362 | .240 | .602 | 11.917*** | YES |
| H6c | Commitment | Value for University | .536 | - | .536 | 17.569*** | YES |
| H6d | Commitment | Value for Business | .393 | .127 | .520 | 11.037*** | YES |
| H7 | Commitment | Overall Rel. Value | .371 | .399 | .771 | 13.751*** | YES |
| H8a | Value for University | Value for Academic | .331 | - | .331 | 10.096*** | YES |
| H8b | Value for University | Value for Acad. Team | .447 | - | .447 | 14.629*** | YES |
| H8c | Value for University | Value for Students | .465 | - | .465 | 15.233*** | YES |
| H8d | Value for University | Value for Business | .236 | - | .236 | 6.660*** | YES |
| H9a | Value for Academic | Value for Society | .166 | - | .166 | 4.387*** | YES |
| H9b | Value for Acad. Team | Value for Society | .106 | - | .106 | 2.499* | YES |
| H9c | Value for University | Value for Society | .099 | .234 | .333 | 2.441* | YES |
| H9d | Value for Students | Value for Society | .121 | - | .121 | 3.792*** | YES |
| H9e | Value for Business | Value for Society | .318 | - | .318 | 9.384*** | YES |
| H10a | Value for Academic | Overall Rel. Value | .347 | .014 | .361 | 13.231*** | YES |
| H10b | Value for Acad. Team | Overall Rel. Value | .187 | .009 | .197 | 6.636*** | YES |
| H10c | Value for Society | Overall Rel. Value | .087 | - | .087 | 3.877*** | YES |
| H10d | Value for Students | Overall Rel. Value | .021 | .011 | .031 | .991 | NO |
| H10e | Value for Business | Overall Rel. Value | .016 | .028 | .044 | .681 | NO |
| H10f | Value for University | Overall Rel. Value | .066 | .241 | .307 | 2.493* | YES |
| H11a | Overall Rel. Value | Rel. Satisfaction | .793 | - | .793 | 31.839*** | YES |
| H11b | Overall Rel. Value | Word of Mouth | .180 | .260 | .440 | 3.823*** | YES |
| H11c | Overall Rel. Value | Intention to Expand | .075 | .213 | .287 | 1.401 | NO |
| H11d | Overall Rel. Value | Intention to Renew | .350 | .231 | .581 | 7.517*** | YES |
| H12a | Rel. Satisfaction | Intention to Renew | .292 | - | .292 | 6.189*** | YES |
| H12b | Rel. Satisfaction | Intention to Expand | -.061 | .131 | .070 | -1.147 | NO |
| H12c | Rel. Satisfaction | Word of Mouth | .104 | .055 | .159 | 2.206* | YES |
| H13a | Intention to Renew | Word of Mouth | .080 | .205 | .285 | 2.248* | YES |
| H13b | Intention to Renew | Intention to Expand | .449 | - | .449 | 11.998*** | YES |
| H14 | Intention to Expand | Word of Mouth | .456 | - | .456 | 15.320*** | YES |

Legend: *** p<0.001; ** p<0.01; * p<0.05

Table 20: Hypotheses Support

The following sections briefly highlight the results of the path model analysis, but do not discuss the results (see chapter 6 for the discussion of results).

H1: Common understanding of expectations positively influences commonness of expectations

The results indicate a strong positive influence of *Common Understanding of Expectations* on *Commonness of Expectations* ($p < 0.001$), confirming H1. With a coefficient of 0.782, the association is the second strongest found with only *Overall Relationship Value* having a stronger influence on *Relationship Satisfaction*.

H2b, H2d: Common understanding of expectations and commonness of expectations positively influence commitment

Support was also found for H2b and H2d which propose a positive relationship of *Common Understanding of Expectations* and *Commonness of Expectations* with *Commitment* (both $p < 0.001$). Establishing a common understanding of expectations in a relationship was found to only have weak direct influence on commitment (0.195). However, the results also showed a much stronger indirect effect (through *Commonness of Expectations*) of 0.426, resulting in a total effect of 0.621.

As expected, having common expectations affects the commitment to a relationship positively and significantly ($p < 0.001$). The results revealed a path coefficient of 0.544, thus a moderate association.

H6a-d: Commitment positively influences the value for the academic, the academic team, the university and the business partner

The proposed association between *Commitment* and the value for the four direct stakeholders of the relationship was confirmed by the results (all $p < 0.001$). The results indicate that commitment has a moderate impact on the value created for the university (0.536). With the university being conceptualised as a central actor (mediator) in the relationship, the results show both the direct and indirect influence of commitment on the value for the other three stakeholders. The strongest link has been found between commitment and the value for the academic team with a direct

effect of 0.362 and an indirect one of 0.240, leading to a total of 0.602. Following the academic team, commitment was also found to moderately affect the value for the academic with a slightly higher direct effect (0.405) and a lower indirect effect (0.178). Lastly, a total effect of 0.520 (direct: 0.393; indirect: 0.127) emerged with respect to the link between commitment and the value created for the business partner. While the direct and indirect effects slightly differ, the total effects of commitment on the four direct relationship stakeholders are similarly high (0.520 to 0.602)

H7: Commitment positively influences the overall relationship value

Confirming RM literature, commitment was found to strongly affect the overall relationship value as perceived by the academic ($p < 0.001$). The results highlight that commitment not only has an indirect affect through the direct and indirect stakeholders (0.371), but also has a positive direct effect (0.399).

H8a-d: The value for the university positively influences the value for the academic, the academic team, students and the business partner

Support was also found for the proposed relationships between the value for the university and the value for the academic, the academic team, students and the business partner (all $p < 0.001$). Proposing that the university has a central role in terms of fostering the relationship's value creation, the results indicate a moderate link between university value and the academic's value (0.331), the academic team value (0.447) and student value (0.465), but only a weak relationship with respect to business value (0.236).

H9a-e: The value for the university, the academic, the academic team, students and the business partner positively influence the value for society

The results indicate that the value for each organisational, individual and group stakeholder positively affects the value for society. While the results for the academic team value and university value are significant on a 5% level ($p < 0.05$), the results for the academic's value, student value and business partner value are significant on a 0.1% level ($p < 0.001$). The strongest influence on society value has

been found in the value for university (total of 0.333). Due to the conceptualisation of university value as an antecedent of other stakeholder values, the results showed both the direct and indirect influence. While the direct influence can be considered as very weak (0.099), the indirect effect through the other stakeholders is much stronger (0.234), but still weak according to the general interpretation of correlation coefficients.

As expected, the business partner, as the intermediary between academia and the general public, has been found as a main stakeholder to drive society value (0.318). Following the two organisational stakeholders, the value for the academic (0.166), for students (0.121) and for the academic team (0.106) has also been found to positively influence the relationship's value for society.

H10a-f: The relationship's value for the academic, the academic team, the university, students, the business and society positively influence the academics' overall perceived relationship value

The results revealed that only the value generated for some stakeholders positively affect the academic's perceived overall relationship value. While the value generated for the academic itself, the university, the academic team and society has a positive influence of the academic's perception of the overall value of the relationship (university value: $p < 0.05$; all others $p < 0.001$), the value generated for students and for the business partner were not found to significantly affect the academic's perception, thus rejecting H10d and H10e. With respect to the strength of the total effect, the value created for the academic itself (0.361) and for the university (0.307) have highest impact, followed by the academic team's value (0.197) and society value (0.087). Looking at the direct and indirect effects the results show that the academic's and the academic team's indirect effect, through society, on the perceived relationship value are very weak (0.014 and 0.009). The effect of the value generated for the university on the academic's perceived overall relationship value, on the other hand, is primary indirect (0.241) with only 0.66 being reported as a direct effect.

H11a-d: The academics' overall perceived relationship value positively influences the academics' relationship satisfaction, word of mouth, intention to expand activities with the partner and intention to expand UIR activities in general

The results did not confirm all associations of the overall relationship value as perceived by the academic and further relationship outcomes. While the academic's perceived relationship value significantly (all $p < 0.001$) effects the academic's satisfaction with the relationship, WOM and the intention to renew the relationship with the business partner, no significant influence has been found on the academic's intention to expand UIRs in general, leading to the rejection of H11c.

With respect to the confirmed linkages, the strongest relationship has been found between the overall perceived relationship value and the academic's relationship satisfaction (0.793), supporting general RM literature. The results also confirmed a moderately strong relationship between overall perceived relationship value and the intention to renew the UIR with the business partner, with a direct effect of 0.350 and an indirect effect (through satisfaction) of 0.231, resulting in a total of 0.581. Lastly, the influence of overall relationship value on WOM has been confirmed (total: 0.440; direct: 0.180; indirect: 0.260).

H12a-c: The academics' perceived relationship satisfaction positively influences the academics' intention to renew UIR activities with the partner, the intention to expand UIRs in general and WOM

Similarly to overall relationship value (see previous paragraph), not all hypotheses with respect to the academic's relationship satisfaction were confirmed. The hypothesis that relationship satisfaction positively effects the intention to expand UIRs in general had to be rejected ($p > 0.05$), while the relationships with WOM and relationship renewal with the business partner could be confirmed. The results show that relationship satisfaction has a weak to weak moderate positive influence (0.292) on the academic's intention to renew activities with the same business partner ($p < 0.001$). With respect to WOM, a weak association (0.159) has been found ($p < 0.05$), confirming H12c.

H13a-b: Academics' intention to renew UIR activities with the business partner positively influences the academic's WOM and intention to expand UIR activities in general

The proposed effect of an academic's intention to renew the relationship with a business partner on the academic's WOM as well as the academic's intention to expand UIR activities in general were confirmed. The effect on WOM has been found to be significant at a 5% level ($p < 0.05$) with the primary effect being indirect (through the intention to expand UIR in general). A coefficient of 0.080 for the direct effect emerged and was complemented by a coefficient of 0.205 for the indirect link, resulting in a total effect of 0.285.

The positive association between the academic's intention to renew activities with the business partner and the intention to expand UIR activities beyond the current relationship has been found to be moderate (0.449) and significant ($p < 0.001$).

H14: Academics' intention to expand UIR activities with other business partners positively influences the academics' word of mouth

Support was also found for H14 that states that an academic's WOM is positively influenced by the academic's intention to expand UIR activities beyond the current relationship ($p < 0.05$). The coefficient of 0.456 shows a moderate effect.

Having presented the path analysis results and shown that 29 hypotheses were supported by the data while 4 had to be rejected, the next section will detail the re-specification of the model.

5.4.2 Final Path Model

Acknowledging the “unlikelihood of the conceptual model representing the most parsimonious account of the data” (Plewa, 2005), the model was re-specified in order to improve model parsimony and model fit. The re-specification process was implemented in two phases, namely the elimination of paths which did not show significant t-values (phase 1), followed by the adding of new paths (phase 2).

Phase 1: taking the results of the original path model as a basis (see previous section), all paths not showing a significant t-value ($p > 0.05$) were eliminated. These included the paths from *Value for Students* and *Value for Business* on *Overall Relationship Value* (H10d and H7e) as well as the paths from *Overall Relationship Value* and *Relationship Satisfaction* on *Intention to Expand* (H11c and H12b).

Phase 2: following the elimination of non-significant paths, new paths were added to the model based on modification indexes and expected parameter changes as provided by the used SEM software. While modification indexes outline the minimum decrease of the Chi-square value (Diamantopoulos & Siguaw, 2000), expected parameter changes show the estimated (positive or negative) change of the parameter in the model re-specified (Byrne, 2001). However, new paths were not just added based on the statistical results, but have been based on theory and contents (logic), as suggested by Diamantopoulos and Siguaw (2000). Overall, six new paths were added to the model.

First, a new path has been added between *Common Understanding of Expectations* and *Relationship Satisfaction*. The link between having a common understanding of expectations in a relationship and the academic's satisfaction with the relationship can be explained by examining the core of the satisfaction concept. Satisfaction can be and is defined in this research as the outcome of an evaluation process in which the perceived performance is compared to the expected performance (Gerson, 1994; Anton, 1997; see also section 2.2.5.1). Hence, expectations represent one of the two core elements of the satisfaction concept. While the performance (or the benefits generated) is an important factor for satisfaction, expectations account for the other part of the equation. Thus, understanding the other stakeholders' expectations in a relationship can help building more realistic expectations and thus might positively influence the perceived satisfaction, justifying the newly added path Add1. While Mohr and Bitner (1991) dedicate their work to service encounters and do not specifically refer to the mutual understanding of expectations, they "propose [in their model] that mutual understanding between the customer and the employee is a major factor influencing customer satisfaction in service encounters" (Price et al., 1995, p. 36), thus giving further evidence on the link between *Common Understanding of Expectations* and *Relationship Satisfaction* as added in this research.

Second, a new path was integrated between *Commonness of Expectations* and *Relationship Value*. Theoretically this path can be explained by the fact that perceived relationship value is not only based on the value generated on the individuals / organisational level (e.g. value academic, academic team, business, university), but that the value of a relationship also lies on characteristics of the relationship itself (relationship level), as highlighted, for example, by Zeithaml (1988) and Ravald and Grönroos (1996). Like trust, commitment and other relationship characteristics which have been found to contribute to relationship value (see this study's literature review), the commonness of expectation is another characteristic of UIRs which provides positive value.

Third, an additional path between *Commitment* and *Value for Students* has been implemented. In this research, the construct *Value for Students* includes all students of the university who were actively involved in the relationship (those who were involved are included in the construct *Value for Academic Team*). Thus, these students are, beside society, the only indirect stakeholder group of the relationships examined in this study. The significant association between the direct stakeholders' commitment and the value generated for students, however, can be explained by the direct usage of the relationship output in student-facing activities. In other words, students benefit from certain UIR benefits, e.g. increased knowledge or new contacts (e.g. D'Este & Patel, 2007; D'Este & Perkmann, 2011; Van der Sijde, 2012), as the university, the academic or the academic team involved in the UIRs transfer these benefits to students by means of teaching or other forms of exchange (e.g. university job board). In this sense, the direct relationship stakeholders might be seen as "vehicles". Here it has to be noted that while the direct stakeholders might function as a vehicle, the value generated for the direct stakeholders was not found to mediate between commitment and student value (e.g. students can benefit from a new contact made in the relationship while this contact is of no/few value for the academic itself).

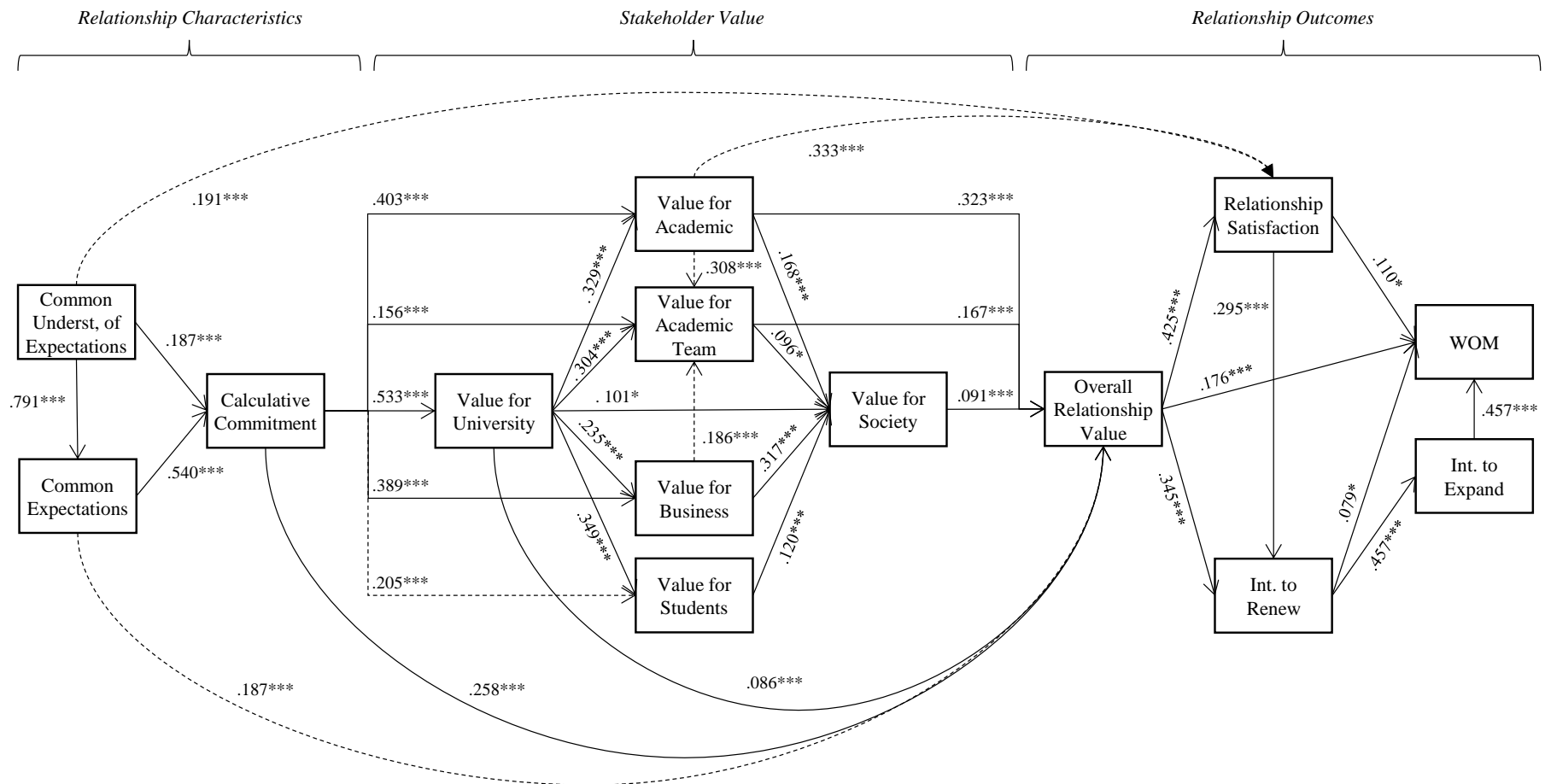
Fourth, a new path has been added between *Value for the Academic* and *Value for Academic Team*. Theoretically, this path can be explained by the central role the academics play in the relationship. As the data revealed, many of the respondents were also the project manager (see section 5.3), thus having control over the project. Similar to the conceptualisation of the university as a central actor, which

influences other stakeholders' value, academics might also control resources, give direction and motivate which does not only result in a higher value of the entire relationship, but also for the academic team as part of this relationship. Another explanation might be that the individual academic and the academic team share certain benefits. For example, the academic team might benefit from a higher value of the surveyed academic by image transfer (a higher reputation of the individual academic / project manager also results in a higher reputation of the team), access to facilities (e.g. new equipment for the individual academic / project manager can potentially be used by the team) or new publishing opportunities (the individual academic / project manager invites team member to create joint publications).

Fifth, in line with the added path between *Value for Academic* and *Value for Academic Team* (see point four), an additional path has been implemented between *Value for Business* and *Value for Academic Team*. The argumentation for this link could follow the one in the previous paragraph. Also businesses control resources, give direction and motivate so that the value for the academic team might rise when the business receives higher value itself. For example, if the business partner expects a high value of the research output, they might invest more resources into the project, resulting in a win-win situation. From an output perspective, one might also argue that successfully commercialised technologies generate value for the business, but also increase the reputation of the academic team having (co-)developed this technology.

Sixth, a new path was integrated between *Value for Academic* and *Relationship Satisfaction*. In the conceptual model of this research, relationship value has been conceptualised as a full mediator between the different stakeholder value constructs (incl. *Value for Academic*) and the academic's perceived satisfaction with the relationship. However, the data indicates that not only the overall relationship value seems to be important for the satisfaction of academics, but also the academics' own value. It seems that the overall relationship value does not necessarily have to be high to satisfy an academic, but academics can also be satisfied if they receive value themselves. This could be interpreted as an evaluation of satisfaction being primary, but not solely, focused on one owns interest.

The following shows the final path model, reflecting the elimination and adding of paths as described above (added path are highlighted by dashed arrows).



| | | | |
|---|----------|---------------------------------|------|
| χ^2 value | 1620.762 | Goodness-of-Fit (GFI) | .915 |
| Degrees of freedom (df) | 681 | Adjusted Goodness-of-Fit (AGFI) | .902 |
| P value (Bollen-Stine) | .002 | Tucker-Lewis Index (TLI) | .978 |
| χ^2 / df value | 2.280 | Comparative Fit Index (CFI) | .979 |
| Root Mean-Square Error of Approximation (RMSEA) | .039 | Normed Fit Index (NFI) | .965 |

Figure 23: Final Path Model

Comparing the indexes of the original path model and the re-specified model, a slight model improvement can be reported. While the model is still not supported by a significant χ^2 (p-value unchanged at 0.002) which might be a result of the large sample size (Bortz & Lienert, 2008), the RMSEA value and other fit indexes indicate an appropriate fit (GFI=0.915; AGFI=0.902) or a good fit ($\chi^2/df=2.280$; TLI=0.978; CFI=0.979; NFI=0.965). Most notably, the AGFI value improved from 0.887 to 0.902, now pointing to an appropriate fit, not given in the original model.

With respect to model parsimony, the CAIC value shows an improvement as well. The value improved from 2697.073 to 2393.529 in the final model, indicating a better level of the model's parsimony.

The elimination and adding of paths also resulted in changes of the direct and indirect effects of the prior existing paths. The following table presents the path coefficients and critical ratio of the new paths as well as of those paths which coefficients have significantly changed as a result of the new paths. A table summarising all path coefficients and critical ratios can be found in appendix 8.

| Hyp. | Ind. variable | Dep. variable | Conceptual Model | | | | Final Model | | | |
|------|---------------|---------------|----------------------|----------|-------|----------------|----------------------|----------|-------|----------------|
| | | | Standardized Effects | | | Critical Ratio | Standardized Effects | | | Critical Ratio |
| | | | Direct | Indirect | Total | | Direct | Indirect | Total | |
| H3b | Com | Val-Team | .362 | .240 | .602 | 11.917*** | 156 | 436 | 592 | 4.784*** |
| H4 | Com | RelVal | .371 | .399 | .771 | 13.751*** | 258 | 369 | 627 | 8.419*** |
| H5b | ValUni | Val-Team | .447 | - | .447 | 14.629*** | 304 | 145 | 449 | 10.018*** |
| H5d | ValUni | ValStu | .465 | - | .465 | 15.233*** | 349 | - | 349 | 9.666*** |
| H8a | RelVal | Sat | .793 | - | .793 | 31.839*** | 425 | - | 425 | 10.884*** |
| H8b | RelVal | WOM | .180 | .260 | .440 | 3.823*** | 176 | 182 | 358 | 3.805*** |
| H8d | RelVal | IntRen | .350 | .231 | .581 | 7.517*** | 345 | 125 | 471 | 7.562*** |
| Add1 | ComUndExp | Sat | | | | | 191 | 345 | 536 | 6.855*** |
| Add2 | ComExp | RelVal | | | | | 187 | 339 | 526 | 6.684*** |
| Add3 | Com | ValStu | | | | | 205 | 186 | 391 | 5.743*** |
| Add4 | ValAcad | Val-Team | | | | | 308 | - | 308 | 9.955*** |
| Add5 | ValBus | Val-Team | | | | | 186 | - | 186 | 6.550*** |
| Add6 | ValAcad | Sat | | | | | 333 | 167 | 500 | 9.893*** |

Legend: *** p<0.001; ** p<0.01; * p<0.05

Table 21: Changes in Path Coefficients in Revised Model

First, the results show a much lower direct effect of *Commitment* on *Value for Academic Team* (0.362 down to 0.156). At the same time, the direct effect increases from 0.240 to 0.436, nearly making it up. Similarly, the direct effect of *Value for University* on *Value for Academic Team* decreased from 0.447 to 0.304 with the new indirect effect of 0.145 explaining this drop. These drops might be the result of the additional paths from *Value for Academic* and *Value for Business* on *Value for Academic Team* (Add4 and Add5). While the university is the formal contract partner in the UIRs, the academic and the business partner are directly involved in the projects, and thus have an influence on the value generated for the academic team. The influence of the academic on the academic team found in this research can also be explained by the fact that many of the surveyed academics also reported to be the project manager, thus having at least some control over the project, as argued above.

Second, a significant drop in the direct effects of *Relationship Value* on *Relationship Satisfaction* can be recognised (0.793 down to 0.425). This might be the result of the newly added direct paths from *Common Understanding of Expectations* and *Value for Academic* on *Relationship Satisfaction* (Add1 and Add6). As discussed before, expectations and the perceived performance (value) are key components of the ‘satisfaction equation’. These newly added, direct paths might reduce the effect of *Relationship Value* on *Relationship Satisfaction* (before conceptualised as full mediation). In the same vein, the results report lower indirect effects of the academic’s perceive overall relationship value on the intention to renew UIR activities with the partner as well as on WOM – this also being a potential result of the new role of relationship value as a partial mediator.

Third, the results show a lower effect of *Commitment* on *Relationship Value* (0.771 down to 0.627, primary a result of a lower direct effect). This drop might be explained by the newly added path from *Commonness of Expectations* to *Relationship Value* (Add2) which changes the conceptualisation of *Commitment* from a full mediator between *Commonness of Expectations* and *Relationship Value* to a partial mediator.

Lastly, the results show a lower effect of *Value for University* on *Value for Students* (0.465 down to 0.349). This might be explained by the newly added path between *Commitment* and *Value for Students* (Add3). As highlighted before, even

with students being not directly involved in UIRs (as operationalized in this research), a higher commitment of the direct stakeholder can have a positive impact on the value for students, with no other stakeholder value mediating.

5.5 Data Analysis - Relationship Outcome Drivers

In addition to the question which stakeholder values drive the academic's overall perceived relationship value most (see previous chapter), this research aimed to identify the main drivers for each of the remaining relationship outcomes, namely satisfaction, WOM, intention to renew a UIR with a partner, as well as intention to expand UIR activities in general. In order to examine the relationship between stakeholder value constructs and each relationship outcome variable, four separate path models were created. Each of the models followed the conceptualisation of the conceptual model developed in this research (e.g. university value was positioned as a main driver, influencing all other stakeholder value constructs). The following figure outlines the path model used for this research step with the construct "Relationship Outcome" being replaced in each model by the respective outcome variable (e.g. relationship satisfaction or WOM).

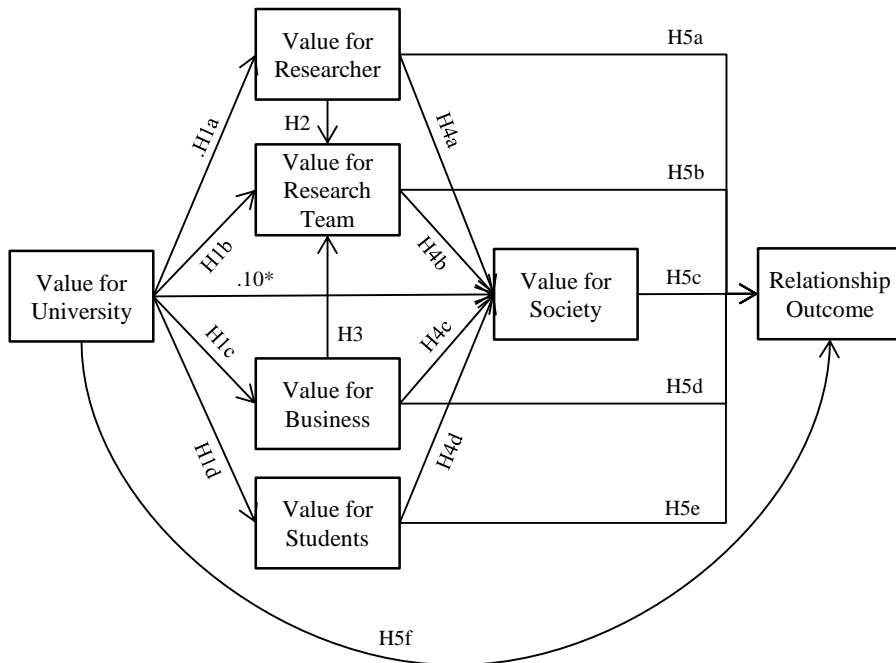


Figure 24: Relationship Outcome Drivers Model

The following sections will outline the results of the four path models, including model fit indexes, path coefficients and significance levels. As the focus primary lies on the relationships between the stakeholder value constructs and the relationship outcomes, the tables only show the results for the hypotheses H5a to H5f, not the results for the paths between the different stakeholder value constructs (these can be found in appendix 9)

5.5.1 Drivers of Relationship Satisfaction

The path model generated to better understand the influence of the different stakeholder value constructs on relationship satisfaction shows an acceptable fit with respect to all indexes with only the χ^2 value not found to be significant (p-value < 0.05). The following table summarises the index values as reported by IBM SPSS AMOS 20.

| Index | Value | Index | Value |
|---|---------|---------------------------------|-------|
| χ^2 value | 511.292 | Goodness-of-Fit (GFI) | .948 |
| Degrees of freedom (df) | 179 | Adjusted Goodness-of-Fit (AGFI) | .932 |
| P value | .002 | Tucker-Lewis Index (TLI) | .986 |
| χ^2 / df value | 2.856 | Comparative Fit Index (CFI) | .988 |
| Root Mean-Square Error of Approximation (RMSEA) | .045 | Normed Fit Index (NFI) | .981 |

Table 22: Model Fit Indexes – Relationship Satisfaction

As discussed earlier, the non-significant χ^2 value might be a result of the large sample size (see section 5.4.1). As all other indexes show an acceptable fit, it was seen as appropriate to continue with the analysis.

The table listed below summarises the path coefficients and the support of hypotheses. Support was found for all paths between stakeholder value constructs and relationship satisfaction with the exception of *Value for Business*. The value for the surveyed academic itself was found to have the strongest effect (0.509) followed by the value for the academic team (0.182). Both paths were found to be significant on a 0.1% level while the other three significant paths (value for society, students and university) were significant on a 5% level. These three stakeholder value constructs have also shown much lower path coefficients, ranging from 0.086 (*Value for University*) over 0.066 (*Value for Society*) down to 0.054 (*Value for Students*).

| Hyp. | Independent variable | Dependent variable | Standardized Effects | | | Critical Ratio | Hy. Support |
|------|-------------------------|--------------------|----------------------|----------|-------|----------------|-------------|
| | | | Direct | Indirect | Total | | |
| H5a | Value for Academic | Rel. Satisfaction | .509 | .080 | .589 | 15.227*** | YES |
| H5b | Value for Academic Team | Rel. Satisfaction | .182 | .006 | .188 | 5.059*** | YES |
| H5c | Value for Society | Rel. Satisfaction | .066 | - | .066 | 2.278* | YES |
| H5d | Value for Business | Rel. Satisfaction | .043 | .065 | .108 | 1.431 | NO |
| H5e | Value for Students | Rel. Satisfaction | .053 | .008 | .061 | 2.002* | YES |
| H5f | Value for University | Rel. Satisfaction | .086 | .474 | .560 | 2.561* | YES |

Legend: *** p<0.001; ** p<0.01; * p<0.05

Table 23: Path Coefficients – Relationship Satisfaction

Following the discussion on the results of the path model on relationship satisfaction drivers, the following section shows the results for the relationship outcome construct WOM

5.5.2 Drivers of WOM

Just as the path model for relationship satisfaction, the path model for WOM shows a non-significant χ^2 value with all other fit indexes pointing to an acceptable fit (see table below), justifying the further analysis of the model.

| Index | Value | Index | Value |
|---|---------|---------------------------------|-------|
| χ^2 value | 525.689 | Goodness-of-Fit (GFI) | .947 |
| Degrees of freedom (df) | 179 | Adjusted Goodness-of-Fit (AGFI) | .932 |
| P value | .002 | Tucker-Lewis Index (TLI) | .985 |
| χ^2 / df value | 2.937 | Comparative Fit Index (CFI) | .987 |
| Root Mean-Square Error of Approximation (RMSEA) | .046 | Normed Fit Index (NFI) | .981 |

Table 24: Model Fit Indexes – WOM

The results outline that only three of the hypotheses were supported while the other three had to be rejected. The effect of *Value for Academic Team*, *Value for Students*, and *Value for Society* on *WOM* have been found to be significant (p<0.001 for the first two; p<0.05 for *Value for Society*), with the direct path coefficients being rather low, ranging from 0.082 to 0.188. Due to an indirect effect of 0.299, the total effect of *Value for University*, however, can be regarded as moderate. The remaining three value constructs, namely *Value for Academic*, *Value for Business* and *Value for University*, have not been found to significantly influence *WOM*.

| Hyp. | Independent variable | Dependent variable | Standardized Effects | | | Critical Ratio | Hyp. Support |
|------|-------------------------|--------------------|----------------------|----------|-------|----------------|--------------|
| | | | Direct | Indirect | Total | | |
| H5a | Value for Academic | WOM | .066 | .086 | .151 | 1.540 | NO |
| H5b | Value for Academic Team | WOM | .188 | .008 | .196 | 3.937*** | YES |
| H5c | Value for Society | WOM | .082 | - | .082 | 2.127* | YES |
| H5d | Value for Business | WOM | .076 | .072 | .148 | 1.911 | NO |
| H5e | Value for Students | WOM | .147 | .010 | .157 | 4.138*** | YES |
| H5f | Value for University | WOM | .075 | .299 | .374 | 1.676 | NO |

Legend: *** p<0.001; ** p<0.01; * p<0.05

Table 25: Path Coefficients – WOM

Having discussed the influence of stakeholder value constructs on WOM, the following two sections will outline the path analysis results with respect to the academic's intention to renew the UIR with the partner (next section) and to extend UIRs in general (section after next).

5.5.3 Drivers of Intentions to Renew

In contrast to the two previous path models, the path model looking at drivers of the intention to renew the UIR with the partner uses a one-item measure as output variable, resulting in less degrees of freedom in the model. The table below summarises the path model's fit statistics.

| Index | Value | Index | Value |
|---|---------|---------------------------------|-------|
| χ^2 value | 401.347 | Goodness-of-Fit (GFI) | .954 |
| Degrees of freedom (df) | 142 | Adjusted Goodness-of-Fit (AGFI) | .938 |
| P value | .002 | Tucker-Lewis Index (TLI) | .987 |
| χ^2 / df value | 2.826 | Comparative Fit Index (CFI) | .989 |
| Root Mean-Square Error of Approximation (RMSEA) | .045 | Normed Fit Index (NFI) | .983 |

Table 26: Model Fit Indexes – Intentions to Renew

In line with the results of the previous two path models, the only issue reported is the non-significant χ^2 value with all other indexes showing an acceptable fit. With respect to hypotheses support (see table below) it can be stated that only H5d had to be rejected as the results do not show a significant effect of *Value for Business* on *Intention to Renew*. All other paths have been found to be significant on a 0.1%

or 1% level with *Value for University* (0.470) and *Value for Academic* (0.253) having the strongest effect on the academic's intention to renew the relationship with the partner.

| Hyp. | Independent variable | Dependent variable | Standardized Effects | | | Critical Ratio | Hyp. Support |
|------|-------------------------|--------------------|----------------------|----------|-------|----------------|--------------|
| | | | Direct | Indirect | Total | | |
| H5a | Value for Academic | Int. to Renew | .175 | .078 | .253 | 4.416*** | YES |
| H5b | Value for Academic Team | Int. to Renew | .160 | .009 | .169 | 3.633*** | YES |
| H5c | Value for Society | Int. to Renew | .093 | - | .093 | 2.625** | YES |
| H5d | Value for Business | Int. to Renew | -.009 | .069 | .060 | -.245 | NO |
| H5e | Value for Students | Int. to Renew | .101 | .011 | .112 | 3.069** | YES |
| H5f | Value for University | Int. to Renew | .183 | .287 | .470 | 4.423*** | YES |

Legend: *** p<0.001; ** p<0.01; * p<0.05

Table 27: Path Coefficients – Intentions to Renew

Following the analysis of stakeholder value constructs driving the academic's intention to renew the UIR with the partner they reported about, the following section looks at the drivers for the academic's intention to expand UIR activities in general (beyond the current partner).

5.5.4 Drivers of Intentions to Expand

The fit statistics for the path model on the intention to expand UIR activities highlight again a non-significant χ^2 value while all other indexes can be considered as acceptable, according to the acceptance levels shows in section 5.2.4. The following table summarises these results.

| Index | Value | Index | Value |
|---|---------|---------------------------------|-------|
| χ^2 value | 386.915 | Goodness-of-Fit (GFI) | .956 |
| Degrees of freedom (df) | 142 | Adjusted Goodness-of-Fit (AGFI) | .941 |
| P value | .002 | Tucker-Lewis Index (TLI) | .987 |
| χ^2 / df value | 2.725 | Comparative Fit Index (CFI) | .989 |
| Root Mean-Square Error of Approximation (RMSEA) | .044 | Normed Fit Index (NFI) | .984 |

Table 28: Model Fit Indexes – Intentions to Expand

In terms of hypotheses support, the results show that H5a to H5d have to be rejected while only H5e and H5f were confirmed. In other words, only *Value for Students* and *Value for University* have been found to significantly influence the academic's

intention to expand activities with business organisations in general. Hereby it has to be noted that the path coefficients are rather low (0.249 for *Value for University* and 0.117 for *Value for Students*), showing that these value constructs only have a minor influence on the academic's intention.

| Hyp. | Independent variable | Dependent variable | Standardized Effects | | | Critical Ratio | Hyp. Support |
|------|-------------------------|--------------------|----------------------|----------|-------|----------------|--------------|
| | | | Direct | Indirect | Total | | |
| H5a | Value for Academic | Int. to Expand | .036 | .034 | .070 | .798 | NO |
| H5b | Value for Academic Team | Int. to Expand | .066 | .005 | .071 | 1.318 | NO |
| H5c | Value for Society | Int. to Expand | .047 | - | .047 | 1.150 | NO |
| H5d | Value for Business | Int. to Expand | .035 | .031 | .067 | .844 | NO |
| H5e | Value for Students | Int. to Expand | .111 | .006 | .117 | 2.973** | YES |
| H5f | Value for University | Int. to Expand | .096 | .152 | .249 | 2.041* | YES |

Legend: *** p<0.001; ** p<0.01; * p<0.05

Table 29: Path Coefficients – Intentions to Expand

To summarise, the sections 5.5.1 to 5.5.4 have outlined by which stakeholder value constructs the four relationship outcomes *Relationship Satisfaction*, *WOM*, *Intentions to Renew*, and *Intentions to Expand* are driven. The results indicate that each outcome is driven by an individual set of drivers.

5.6 Chapter Summary

This chapter presented the results of the quantitative research step which followed the qualitative one. First, the process of data preparation was outlined, including a non-response bias discussion, case selection, treatment of missing values and normality, reliability and validity. In addition, one-factor congeneric measurement models were presented for all multi-item constructs with a discussion of model identification and fit indexes concluding the section of data preparation.

Second, characteristics of the final sample were presented. In order to support data analysis and interpretation, characteristics of the individual respondents, the relationships the respondents reported on, as well as the organisations the respondents were affiliated with, were shown. A total of 903 responses were included in the analysis.

Third, this chapter presented the analysis results of the path models. Only four hypotheses had to be rejected while 29 were confirmed. Model fit statistics highlighted an acceptable fit with respect to most indexes, however, the AGFI value fall

slightly under the acceptance level and the χ^2 value was not found to be significant. Aiming to achieve a higher model fit and parsimony, the model was re-specified by eliminating non-significant paths and adding new ones based on modification indexes reported by the software used whilst also taking theoretical considerations into account. While the AGFI value reached the acceptance level in the re-specified model, the model still showed a non-significant χ^2 value. This issue was discussed and justified by the large sample size.

Following the analysis of the overall path model, individual path models were presented to identify key drivers of the additional four relationship outcomes (next to *Relationship Value*) researched in this study, namely *Relationship Satisfaction*, *WOM*, *Intentions to Renew*, and *Intentions to Expand*. Highlighting fit statistics and hypotheses support for each model, the section outlined that each relationship outcome is driven by a different set of stakeholder values.

The following chapter will discuss the results presented in this chapter and outline contributions to theory and practice as well as limitations and suggestions for future research.

6. RESULTS DISCUSSION, LIMITIATIONS, CONTRIBUTIONS & FUTURE RESEARCH

6.1 Chapter Introduction

Literature on RM, ST and UIRs has independently from each other addressed the central role value plays in making relationships work. The missing integration of these three literature streams and the explicit embedment of value at the centre of this integration have been the focus of this research. The research aimed at developing a better understanding on how value is created in UIRs and how the value created for different stakeholders affects relationship outcomes.

Based on a thorough review of the three literature streams, a conceptual model was developed. Due to the multifaceted nature of value, the novel idea of integrating stakeholder value and relationship value in one model, and its first application in UIRs, qualitative interviews were conducted in order to obtain a deeper understanding of the phenomena, which finally led to a refinement of the conceptual model. The refined model was then empirically tested by a quantitative web-based survey among England-based academics. The results of this model testing and the re-specification of the model to improve model parsimony and model fit have been presented in the previous chapter.

In this chapter, the results are discussed in more detail, structured by the three research questions addressed in this study. In addition, limitations of the research are pointed out and contributions to theory are presented. Before summarising the chapter, contributions to practice are outlined and directions for future research are given.

6.2 Discussion

The data gathered in the quantitative research step provided considerably support for the model developed throughout this study. The model provides insights into how key relationship characteristics influence the value generated for different stakeholders in UIRs and how these again influence the overall relationship value as perceived by the academic involved in the relationship. In addition, the path

model has highlighted the interdependencies between the stakeholder value constructs, and how different relationship outcomes, namely *Relationship Satisfaction*, *WOM*, *Intention to Renew* and *Intention to Expand*, are impacted by the overall perceived relationship value.

The individual results of this study are discussed below. The sections are focused on comparing this study's empirical results with existing literature and on outlining potential explanations for the results, ultimately leading to the key findings of this research. The discussion is presented in three sections, each addressing one of the research questions defined in this research (see section 1.4).

6.2.1 Key Relationship Characteristics Driving Stakeholder Value Creation in UIR

Aiming to investigate key relationship characteristics influencing value creation in UIRs, various characteristics were taken into account, including trust, commitment, communication, power distance, integration, and shared goals. Finally, following the work of several scholars in RM (e.g. Morgan & Hunt, 1994; Geyskens et al., 1996; Garbarino & Johnson, 1999) and more specifically UIRs (Plewa, 2005), trust and commitment have been identified as the most central constructs to be considered. During the qualitative interviews performed in this research (see chapter 3), the consideration of expectations emerged to be a central. While Mora-Valentin et al. (2004) and Plewa (2005) investigated communication respectively integration in the context of UIRs, it became evident in the interviews that more than these characteristics, specifically the common understanding of expectations as well as the commonness of expectations towards relationship outcomes seem to have a large influence on the value created in UIRs. Based on the analysis results of the interview data, the two constructs *Common Understanding of Expectations* as well as *Commonness of Expectations* were added as relationship characteristics to the model, next to trust and commitment. Trust, however, had to be finally excluded from the analysis due to issues with respect to discriminant validity of the trust and commitment constructs.

In order to better understand how relationship characteristics drive stakeholder value in UIR, the final model to be tested included the following paths: *Common-*

ness of Expectations was conceptualised as influencing *Commitment* while *Common Understanding of Expectations* was expected to affect both, *Commonness of Expectations* as well as *Commitment*. Finally, *Commitment* was anticipated to influence the value created for all direct stakeholders of the relationship.

Having investigated the three remaining relationship characteristics with respect to their effect on value creation, the following two key findings can be stated:

1. Mutual understanding and commonness of expectations play an important role in the creation of commitment
2. Commitment is a key driver of stakeholder value in UIRs, not only for direct, but also for indirect stakeholders

First, the data shows that a common understanding of expectations has a significant and strong positive effect on the commonness of expectations in a relationship (path coefficient of 0.791). While a positive relationship between the constructs was anticipated, the strength slightly exceeded our expectation. Given the existing cultural differences between universities and their business partners, such as time scales, priorities and values (Cyert & Goodman, 1997; Mora-Valentin, 2000; Barnes et al., 2002), it cannot be assumed that relationships in which the expected outcomes have been shared openly between the parties would also report a very high overlapping of the expected outcomes communicated. On the other hand, the results have also to be interpreted in view of the sample studied. As only relationships were examined which were actually implemented, it can also be assumed that those relationships in which no common expectations could be set (even after a clear discussion) have never been established, thus, explaining the strong link between the two relationship characteristics.

In addition, the results have confirmed *Common Understanding of Expectations* as well as *Commonness of Expectations* as predictors of *Commitment*. While previous research has found evidence for shared goals affecting behaviour, such as knowledge sharing (Chow & Chan, 2008), the hypothesis that a common understanding of each other's expectations directly influences commitment could also be confirmed. The link can be explained when considering that this research focused on calculative commitment, meaning a commitment which is based on a rational

evaluation of the benefits and costs of a relationship (Cullen et al., 2000). Thus, knowing the expectations of the other party, even if they are different to the own ones, can affect the commitment as knowing the partner's expectation reduces uncertainty in the trade-off evaluation of the benefits and costs of the relationship. This argumentation is in line with past research confirming that reduced uncertainty results in increased commitment (Kollock, 1994).

Second, *Commitment* has been confirmed as a key driver of stakeholder value generation in UIRs. Conceptualised as directly impacting the value generated for all direct stakeholders of the relationship, namely the academic itself, the academic team, the university and the business partner, with further indirect paths existing due to the central role of the university and the impact of the academic and the business partner on the academic team (see sections below), the results show significant medium strong path coefficients for all direct stakeholders. Considering value as a performance-based construct (Ulaga & Eggert, 2006), the results are in line with previous research referring to effects of commitment on performance (Meyer et al., 1989; Leong et al., 1994). However, it has to be noted again that the focus of this research is on calculative commitment whereas most previous research either focused on affective commitment or does not differentiate between the different types of commitment as shown in the literature review of this research.

The results also show a direct effect of *Commitment* on the *Value Generated for Students*, a group which has been conceptualised as an indirect stakeholder of the relationships under study. Indirect stakeholders refer to parties who are only affected by the relationship, as opposed to direct stakeholders who actively take part (Friedman et al., 2002). A direct path between *Commitment* and *Value for Students* had not been anticipated in the conceptual model as it was expected that the value for students not actively involved in the relationship would only be affected indirectly. Thus, a higher partners' commitment to the relationship would not have resulted automatically in a higher value generated for students. The newly established link, however, may be explained by the relationship between the university and students. While students, as conceptualised in this research, are an indirect stakeholder of the relationships, they are a direct, often also referred to as the main (Mainardes et al., 2010) or most prominent (Chapleo & Simms, 2010), stakeholder

of the university. Thus it could be argued that the university, respectively its academics, take care of students receiving rewards from UIRs so that a higher commitment of the partners to the relationship would result in a higher value generated for students.

The findings also point out that the total effect *Commitment* has on the different value constructs is on a similar level. The total effect on the direct stakeholders ranges between 0.514 and 0.592 for the respective linkages, with the total effect of *Commitment* on *Value for Students* as an indirect stakeholder group being reported a bit lower (0.391). An explanation for this finding might be that relationship commitment has to be understood as universal as opposed to a target-oriented commitment for specific activities or goals. In other words, if the partners are committed, some stakeholders do not benefit more while others benefit less, but the commitment is “equally distributed”.

In summary, this research has confirmed calculative commitment as a key driver of value creation for all direct stakeholders of UIRs as well as students as an indirect stakeholder group. In addition, the importance of expectations has been highlighted. Hereby it has to be noted that not only the commonness of partner expectations effects relationship commitment, but also the merely understanding of each other’s expectations has been confirmed as a driver of commitment.

Following the discussion of key relationship characteristics driving the value creation process in UIRs, the next section will highlight the interdependences between the value created for different stakeholders in the relationship.

6.2.2 Interdependences Between the Value Generated for Different Stakeholders

In order to address research gap two identified in this study, namely the unclear effect of the value created for one stakeholder on the value created for others, this research has put the value created for key stakeholders in UIRs at the centre of the developed model and gathered data for six groups: (1) the surveyed academic itself, (2) the academic team involved, (3) the university, (4) students not being involved in the UIR, (5) the business partner, as well as (6) society in general, whereby students and society are regarded as indirect stakeholders with the remaining being considered as direct stakeholders.

Various hypotheses were derived and empirically tested in the quantitative research step. In the model, the generated university value was conceptualised as a key influencer having an effect on all other stakeholder value constructs. The constructs *Value for Academic*, *Value for Academic Team*, *Value for Business*, and *Value for Students* again were considered to have an impact on the generated *Value for Society*. Hereby it has to be noted that the stakeholder groups were operationalized in a way that they are independent from each other. For example, if students were involved in the UIR, they belonged to the academic team, not the stakeholder group students. Similarly, society only included those individuals and organisations not being included in one of the other five stakeholder groups.

The gathered and analysed data on the value created for the six mentioned stakeholder groups yield to three main findings.

1. The (expected) value generated for the university is a main driver of value for other stakeholders, thus putting the university at the centre of the value creation process
2. Next to university value, business value is a key drivers of society value
3. The value generated for the academic team is driven by the value generated for the individual academic as well as the business partner

First, the findings support the conceptualisation of university value being a driver for other stakeholder values. According to the data, the value generated for all five other stakeholder groups, namely the academic, the academic team, students, the business partner as well as society, is significantly affected by the value generated for the university, with total effects ranging from 0.235 (business) to 0.449 (academic team). The results may refer to universities having a certain power position in UIRs. Having control over central resources (Whitley, 2008), such as human resources (the academics' time), infrastructure usage (labs etc.) and intellectual resources (patents etc.), universities could be considered as enablers of the value creation process. If high value is created (or expected to be created) for the university, the university may be more willing to invest resources in the relationship, thus enabling the creation of value for other stakeholders. For example, a university entering a partnership with a business organisation might normally limit the resource

investment to a certain level. Should the university, however, see a higher value for the university (e.g. a new research stream potentially created out of the project, allowing to receive more private or public third-party funding), additional resources may be invested for a more positive long-term benefit, also contributing to a higher value generation for all other stakeholders involved in the relationship.

A key reason for the relative importance of the university in the relationship might lie in the still widely known reservations towards UIRs. For example, critics often highlight the reduced academic autonomy and academic freedom (Scott, 2006; Bridgman, 2007; Lam, 2010) as well as a focus shift due to the increasing chances of private gain (White, 1999) as key disadvantages associated with UIRs. Given a missing implicitness of UIRs being a core activity and responsibility of universities, universities may be considered and also act as “gatekeepers” (following the wording of Webster & Wind, 1972 in the B2B marketing context) with respect to the full exploitation of the value of UIRs. Taking the interpretation to an individual level, Marginson, and Considine (2000) refer in their work on the enterprise university to “individuals seeking to use existing positions of influence to advance a view, their view, of the future of the university” (p. 70). Depending on the view of key actors in the university, UIRs might thus be supported more or less by the university.

Second, the value generated for business has been found to be the strongest predictor of society value coming from UIRs. Slightly exceeding the total effect of *University Value* (with a total effect of 0.315 including an indirect effect of 0.215), the total effect of *Business Value* on *Society Value* is reported as 0.334. The results, thus, confirm the role of business organisations in UIRs as the stakeholder who best helps to generate society benefits by transforming knowledge generated at universities into products and services (Carlsson & Fridh, 2002). Hence, rather than having a negative image on UIRs as reported by Bogler (1994), academics should see businesses as vehicles which are necessary to create society impact as most universities are often neither interested, capable nor allowed to introduce products and services to the market by themselves.

Third, using the indices provided by IBM SPSS AMOS 20 during the model’s re-specification, two additional paths between stakeholder value constructs have been found to be significant, namely the paths from *Value for Academic* as well as

Value for Business to *Value for Academic Team*. In other words, the value generated for the academic team involved in the UIRs is also influenced by the value generated for the individual academic surveyed in this study as well as the business partner. The positive effect of the individual academic's value on the team's value may be explained by team dynamics. According to Kaiser and Overfield (2010, p. 173) "team dynamics refer to how the team functions as a group and includes such things as cooperation, communication patterns, cohesion". In the context of this research, we can assume that the expected value for a certain stakeholder effects its motivation, performance and the final value received. As the different stakeholders do not work in isolation, this means that the motivation and performance of one stakeholder might affect the motivation, performance, and/or value of another stakeholder, explaining the said relationship.

With respect to the influence of *Business Value* on the *Academic Team Value*, two additional explanations might be given. One reason for the interrelationship might be that the business as the second main partner in the UIR holds control over central resources and processes as in the case of the university (see above). Thus, the business could also act as an enabler or gatekeeper. Another explanation might be the image transfer from the business to the academic team. With an increasing value generated for the business partner (e.g. due to a successful product launch), the academic team can claim to have contributed to the creation of this value, ultimately increasing their profile / reputation.

To summarise, this research identified various interdependences between stakeholder values, highlighting dynamics in the value creation process. The next section will present a discussion on the key drivers of relationship outcomes.

6.2.3 Key Drivers of Overall Relationship Value and Further Relationship Outcomes

The discussion of the key relationship outcome drivers is divided into three parts: (1) antecedents of overall relationship value, (2) antecedents of further relationship outcomes (relationship satisfaction, WOM, intention to renew, and intention to expand), and (3) key stakeholder value drivers of these further relationship outcomes.

Antecedents of overall relationship value

1. Neither business nor student value has a significant effect on the academics' overall perceived relationship value
2. The value generated for the academic itself has the largest effect on the academic's perceived overall relationship value, however, the value created for stakeholders also plays a significant role
3. Next to commitment, the commonness of expectations drives a relationship's value

First, neither business nor student value has been confirmed as a predictor of overall relationship value as perceived by academics. The missing link between student value and overall relationship value has been quite surprising, considering that students are (one of) the main (Mainardes et al., 2010) or most prominent (Chapleo & Simms, 2010) stakeholder(s) of a university. This result might be explained by academics not seeing the linkage between the core missions of a university, or not being willing or able to exploit potential benefits from this linkage. In recent years, the concept of the knowledge triangle became more and more prominent, highlighting the interaction between teaching, research and innovation (Soriano & Mulatero, 2010; EIT, 2012). The benefits education can get from UIRs have been highlighted by the European Commission as follows: “for education to fulfil its role in the knowledge triangle, research and innovation objectives and outcomes need to feed back into education, with teaching and learning underpinned by a strong research base, and with teaching and learning environments developed and improved through greater incorporation of creative thinking and innovative attitudes and approaches” (European Commission, 2009, p. C302/4). This link between UIRs and education, and the related “responsibility” of academics to help improving education and student value through UIRs, however, might not be the focus of academics as the development of successful UIRs is already challenging (Lee & Cavusgil, 2006) without linking them to the education mission of the university.

Next to the value generated for students, the value generated for business has not been confirmed as directly impacting the academics' overall relationship value perception. This quite surprising finding may be explained by considering the main

mission and responsibility of a university respectively its academics. The ultimate goal of a university has widely been acknowledged as teaching, research and serving society (Scott, 2006), not serving business. In other words, academics only value the contribution business makes to society, not the value business gets out of the relationship itself (e.g. increasing reputation or shareholder value). Thus, business may be seen solely as a vehicle which helps to transform UIR results to products and services which ultimately have a positive impact on society.

Second, the results show that not only the value created for the academic itself has a significant effect on the academic's overall relationship value perception, but that the value generated of other stakeholders, namely the university, the academic team and society, has an influence as well. Acknowledging a certain natural egoistic attitude and behaviour (Palmer, 2001; Forsberg, 2015), it has been expected that the value created for the academic itself has the largest effect on its overall relationship value perception. Relatively closely following the path coefficient of the academic's value (total effect of 0.392), however, is the total effect of university value (0.296 including a high indirect effect of 0.210). The high indirect effect reported supports the above argument that the university may act as an enabler or gatekeeper in UIRs. In other words, while the value generated for the university only has a minor direct effect on the academic's perception of the entire relationship, its primary contribution lies in the influence on the value created for other stakeholders.

Next to the value created for the academic itself and the university, the value created for the academic team has also been found to affect the academic's overall relationship value perception. The direct effect of 0.167 takes centre stage (total effect of 0.175) and is nearly double as high as the direct effect of the university. The results support previous research indicating that people care about colleagues they (closely) work with (Waerness & Ringen, 1986). Considering that academics often work closely for many years or even decades with colleagues on research projects or in the same field of research, it is not a surprise that they care about the value which is created in UIRs for their academic team.

The results also highlight a relatively weak path coefficient between *Value for Society* and *Overall Relationship Value*. This weak connection might be explained by the fact that society is a rather abstract concept. Research has shown that people like to contribute their time and effort to projects or relationships where they can

see clear benefits (Hofmann-Souki et al., 2010), preferably for themselves or people near to them. With respect to the contribution to society, the benefits of new research results might be obvious, however, the way in which they will make an impact to society and who exactly might benefit from it, might be rather unclear. This uncertainty might explain why the (expected) value generation for society was only found to weakly impact the academic's overall relationship value perception.

Third, the results indicate that besides the before mentioned stakeholder value constructs, the relationship characteristics *Commitment* and *Commonness of Expectations* drive *Overall Relationship Value*. The impact of commitment on overall relationship value supports previous research indicating that commitment is an antecedent of relationship value (Ryssel et al., 2004). Focusing on calculative commitment specifically in this research, its direct effect on relationship value might be explained by the uncertainty of relationships between organisations of different culture (Mora-Valentin, 2000). Calculative commitment is based on a rational evaluation of the benefits and costs of a relationship (Geyskens et al., 1996; Wasti, 2002), thus giving academics a certain security that the relationship moves on as long as value is provided. In other words, academics may value that non-rational reasons are unlikely to end the relationship (e.g. interpersonal conflicts), allowing better planning of UIRs.

This result might also help to better understand the missing link between *Business Value* and *Overall Relationship Value*. As highlighted before, the creation of business value has not been found to drive the academic's overall perception of the relationship's value. Taking into account the effect of calculative commitment on overall relationship value, however, one might argue that the creation of value is important for the academic due to another reason. The generation of value for the business partner is a fundamental requirement for securing calculative commitment. As calculative commitment again drives the value creation for all stakeholders of the relationship and strongly affects the overall relationship value (path coefficient of 0.627), the creation of business value might be regarded as a key element in the UIR value creation process when the relationship is driven by calculative, not affective commitment.

In addition to *Commitment*, *Commonness of Expectations* has been found to strongly affect *Overall Relationship Value*. Having added a new path between the

two constructs in the re-specification phase, a path coefficient of 0.526 (including an indirect effect of 0.339) has been reported. The result is in line with previous research referring to a positive effect shared goals can have on relationship value (Wilson, 2003). With respect to UIRs, the results might be explained taking into account the cultural differences between the parties (Mora-Valentin, 2000). Common expectations towards the outcomes of the relationship might not only be helpful due to the uncertainty of research outcomes (Brown, 1970; Pandit et al., 2011), but also contribute to overcoming any potential problems arising from cultural differences in the relationship. In addition, academics might also value the overlapping of expectations as these could lead into further joint activities in the future (e.g. in case of overlapping research interests).

Following the discussion on antecedents of overall relationship value, a discussion on the antecedents of further relationship outcomes is presented next.

Antecedents of further relationship outcomes

1. Next to overall relationship value, the value generated for the academic and a common understanding of expectations directly influence relationship satisfaction
2. The intention to expand UIR activities beyond the current relationship effects WOM more than any other relationship outcome
3. The overall relationship value perception as well as relationship satisfaction positively influence the intention to renew the relationship with the business partner
4. A relationship's overall perceived value has no direct effect on the academic's intention to expand UIR activities beyond the activities with the partner

First, next to the expected impact of *Overall Relationship Value* on *Relationship Satisfaction* (path coefficient of 0.425), confirming past research (e.g. Ulaga & Eggert, 2006; Cater & Cater, 2009; Kuo et al., 2009), the results indicate even stronger influences from *Value for Academic* and *Common Understanding of Expectations* on *Relationship Satisfaction* (0.500 respectively 0.536). As highlighted in the justification of the newly added paths in section 5.4.2, the direct link between the value

generated for the academic and the academic's satisfaction with the relationship might be explained by the importance for the academic to get some own value, even if the entire relationship cannot be regarded as very valuable. For example, a relationship might create value for the academic, but not value or even negative value (sacrifices higher than benefits) for other stakeholders, resulting in a low or even negative total value of the entire relationship. Despite the low total value, the academic might be satisfied as the expected value (for himself / herself) has been created. This might explain the shift of *Overall Relationship Value* from a full mediator between *Value for Academic* and *Relationship Satisfaction* to a partial mediator.

Next to *Value for Academic*, also *Common Understanding of Expectations* was found to positively influence *Relationship Satisfaction*. This relationship can be explained by the conceptualisation of satisfaction as the outcome of an evaluation process in which the perceived performance is compared to the expected performance (Gerson, 1994; Anton, 1997). With expectations playing a key role in the "satisfaction equation", the common understanding of expectations enables building more realistic outlooks of a relationship, ultimately contributing to a higher likelihood that expectations can be met and thus satisfaction is achieved. Overall, the results are in line with prior research on service encounters proposing that mutual understanding affects customer satisfaction (Price et al., 1995).

Second, the results highlight that the intention to expand UIR activities beyond the current relationship effects WOM more than any other relationship outcome. This result might be interpreted in light of the partly bad image of UIRs. For example, reduced academic autonomy and freedom (Scott, 2006; Bridgman, 2007; Lam, 2010) and a focus shift away from serving society due to the increasing chances of private gain (White, 1999) are often named disadvantages associated with UIRs. Therefore, it might be the case that academics like to talk more about their future (ambitions) with respect to UIRs, rather than their past experiences. While past experiences with UIRs are very specific and potential sacrifices made are thus hard to transmute into positive light, discussions on future ambitions are rather fluffy and can be better shaped by the academic. Hence, it could be argued that academics who have future plans with respect to UIRs are more likely to enter discussions and recommend others to undertake UIRs. In addition to this content-focused explanation, one might also argue that academics who want to expand their UIRs are more

likely to talk to other academics and encourage them to work with business in order to find colleagues for joint projects with businesses.

Third, the results show that the intention to renew a relationship with a partner is positively influenced by the academic's perception of the relationship's value and the academic's satisfaction with the relationship. This study confirms several findings in RM literature on the link between relationship value and renewal (e.g. Whittaker et al., 2007; Olaru et al., 2008) and relationship value and the renewal-related construct loyalty (Walter et al., 2000; Chen & Myagmarsuren, 2011). The results are in contrast to the findings of Patterson & Spreng (1997), who had to reject the value-renewal-link in their study on consulting firms. With respect to UIRs, however, the results confirm the studies of Gray et al. (2001) and Daniel et al. (2002) who indicate a positive link between certain benefits respectively value and membership renewal in joint / sponsored research centres.

With respect to the impact of an academic's relationship satisfaction on renewal intention, this study contributes to the debate whether or not a relationship between the two exists (Bolton, 1998). The results confirm prior RM research indicating this link (Zeithaml et al., 1996; Hennig-Thurau et al., 2002; Kotler et al., 2002; Ranaweera & Prabhu, 2003). With respect to the UIR field, the results confirm the findings of Gray et al. (2001) and Daniel et al. (2002) who report a significant positive effect of satisfaction on membership renewal in joint / sponsored research centres as well as Rosendo-Rios's (2013) results on R&D-focused UIRs in Spain.

Fourth, the results did not confirm a significant effect of *Overall Relationship Value* on *Intention to Expand*. As indicated in the literature review, intentions to expand have been investigated in the RM context with respect to expanding activities with an existing partner (e.g. Eggert et al., 2006; Ulaga & Eggert, 2006; Wagner, 2011), while expansion activities with beyond current partners can be considered an underexplored area. Nevertheless, one paper was found that deals with intentions to expand activities beyond existing partners in the UIR context (Lee, 2000). This paper, however, analysed the data solely on a descriptive level and did not provide any results on a causal level. Thus, this study provides the first results on the causal relationship between *Overall Relationship Value* and *Intention to Ex-*

pand. The expected, but missing link, might on one hand be explained by a limitation in or prioritization of resources (e.g. time available of the academic), on the other hand by the heterogeneity of UIR relationships. First, even if a specific relationship provides high value for an academic it might not result in an expansion of UIR activities as the academic's or university's resources are limited. For example, an academic might have certain teaching obligations which should not be affected by UIR activities. On the other hand, the (expected) positive value provided by UIRs might be lower than the (expected) value of other activities so that an expansion of UIR activities is prioritised low, ultimately resulting in no or low UIR expansion intentions even if (a high) positive value can be anticipated. Second, the missing link between the perceived value of a UIR and intentions to expand UIRs beyond that relationship might be explained by the heterogeneity of UIR relationships. As indicated by an interviewee in Wagner's (2003) study on learning and knowledge transfer in partnerships "every relationship is different and is going to have to be crafted on those specific conditions" (p. 106). Thus, the overall perceived value of a specific relationship might not automatically result in expansion intentions. Rather, other factors, such as the availability of new partners, the thematic focus of potential new relationships or the availability of public funding supporting the UIR, might be key in an academic's decision whether or not to expand future UIR activities beyond the existing relationships.

Following this discussion on the antecedents of relationship satisfaction, WOM, intention to renew, as well as intention to expand UIR activities in general in the developed model, the influence of the different stakeholder value constructs on the before mentioned relationship outcomes will be discussed next.

With the aim to better understand which stakeholder values drives the relationship outcomes relationship satisfaction, WOM, intention to renew, and intention to expand UIR in general, separate models only including the six stakeholder value constructs (value for academic, academic team, university, students, business, and society) and the respective relationship outcome were developed and analysed using IBM SPSS AMOS (see section 7.5). The key insights which can be derived from the data analysis can be summarised as follows.

Key stakeholder value drivers of further relationship outcomes

1. The creation of value for all stakeholders except business has a positive effect on relationship satisfaction
2. Only the creation of value for the academic team, society and students makes academics positively speaking about and recommending UIRs, not the value created for the academic himself, the university or the business
3. The creation of value for the business partner does not influence the academic's intention to renew the relationship with the partner. Creating value for other stakeholders does.
4. Whether or not academics intent to expand UIR beyond the current relationship is only effected by the value created for students and the university.

First, the generation of value for all stakeholders except business has a positive impact on an academic's satisfaction with a relationship. The missing link between business value and the academic's relationship satisfaction might be explained by the role businesses play in the innovation system. Businesses are required (vehicles) to transforming knowledge generated at universities into products and services (Carlsson & Fridh, 2002), ultimately making an impact on society, e.g. in form of higher living standards. Compared to other stakeholders who are also closer to the academic, namely the university the academic works for, the team the academic works with, as well as students and society as key target groups academics aim to serve (Scott, 2006; Trakman, 2008; Redford & Fayolle, 2014), business organisations might be considered as means to ends rather than ends in themselves.

Second, the results show that WOM is driven by the value generated for the academic team, society and students whereby the value for the academic itself, for business and for the university were not found to significantly influence WOM. It could be argued that the results are related to the earlier mentioned negative image of UIRs in terms of reducing academic freedom and autonomy (Scott, 2006; Bridgman, 2007; Lam, 2010) as well as fostering self-interest (e.g. personal financial gain; White, 1999). In other words, academics might be more likely to speak positively about UIRs and recommend working with business to other academics if they

have been engaged in UIRs which created value for their team, society and students. The creation of value for these three stakeholders puts the academic in a rather positive light, while the creation of value for themselves (e.g. personal financial gain; White, 1999), for businesses (e.g. increased shareholder value; van der Sijde 2012) and for the university (e.g. more third party funding, potentially for the sake academic freedom; Lee, 1996) might not contribute or even negatively impact the image of the academic.

Third, the academic's intention to renew a relationship with a business partner is positively influenced by the value generated for all stakeholders, expected the business partner itself. Thus, these results mirror the results on relationship satisfaction presented in the first paragraph, and provide further evidence for the limited importance of business value for the academic's relationship evaluation (e.g. satisfaction or value) and behavioural intentions. These results are especially surprising as the business partner can be considered a main stakeholder in the relationship.

Fourth, the intention to expand UIR activities beyond the current relationship was found to be effected only by the value created for students and the university. Thus, compared to the results on the intention to renew the existing relationship, the value generated for the academic itself, the academic team and society does not seem to have an influence. The reason for the different results might be explained by the types of value potentially generated in the new relationships. For example, the value generated for students, e.g. improved employability (European Commission, 2009) or opportunities to put concepts and theories learned in class into practice (Ginzburg & Houli 2013, Kock et al. 2000), and the value generated for the university, e.g. new income (van der Sijde, 2012; Lee, 2011) or increased reputation (Ahrweiler et al., 2011; van der Sijde, 2012; Strunz et al., 2003) can often be regarded as rather general and it can be expected that the same or similar value can be generated in future relationships. In other words, the value generated might be easier to reproduce in other relationships. Compared to this, creating value for academics and the academic team might be more specific. For example, just because an academic or academic team gained certain new knowledge or enjoyed working in a past relationship, this does not mean that this value can be implied in future relationships with other partners. In the same line, the value created for society in

one relationship does not indicate that similar value can be generated in UIRs integrated another partner as many different aspects have to be taken into account in the exploitation of new knowledge.

Overall, the results show that each relationship outcome has a different set of drivers, as indicated by the table below. Interestingly, value created for the business partner does not influence any relationship outcome. Another interesting fact is given in student value having an influence on all four relationship outcomes, whereby it was not found to influence overall relationship value.

| Hyp. | Independent variable | Dependent variable | | | |
|------|-------------------------|---------------------|------------|---------------------------|----------------------------|
| | | <i>Satisfaction</i> | <i>WOM</i> | <i>Intention to renew</i> | <i>Intention to expand</i> |
| H5a | Value for Academic | YES | NO | YES | NO |
| H5b | Value for Academic Team | YES | YES | YES | NO |
| H5c | Value for Society | YES | YES | YES | NO |
| H5d | Value for Business | NO | NO | NO | NO |
| H5e | Value for Students | YES | YES | YES | YES |
| H5f | Value for University | YES | NO | YES | YES |

Table 30: Summary of Relationship Outcome Drivers

To summarise, this section presented the discussion of the results of this research, structured by the three research questions. Overall, 16 key findings were extracted from the results and discussed in detail, providing significant insights into value creation in UIRs. With respect the perception of value, it can be summarised that academics care about the value generated for others in the relationship. Rather than just taking into account own benefits and costs, the academics' perception of a valuable UIR depends on the value created for others as well. The value created for students and business, however, was not found to affect the academics overall value perception. While the results of the path models for the four additional relationship outcomes support the interpretation that businesses are rather seen by academics as a vehicle (means to ends rather than ends in themselves), the results on the value created for students are in contrast to the results on the overall relationship value perception. While student value does not drive the academic's overall perception of a relationship, it does positively affect all other four relationship outcomes, namely relationship satisfaction, WOM, intention to renew the existing relationship, and intention to expand UIR activities beyond the current relationship(s).

The next section will outline the limitations of this research which need to be taken into account when interpreting the results and key findings.

6.3 Limitations of this Research

While this research contributes to both theory and practice, some limitations have to be highlighted in addition to those which have already been discussed in chapter three as part of the qualitative research step. Thus, the following limitations focus on the quantitative research step as well as the general research approach.

The first and foremost limitation of this research lies in the way the data of the quantitative study has been obtained. Given the difficulty of acquiring dyadic data (Lambe et al., 2002) or data from even more stakeholders, this research made use of the key informant approach (Kumar et al., 1993) with the academic being the only person responding on the respective UIR. In other words, rather than surveying all stakeholders involved in the UIR, the research focused on the perception of the individual academic. Considering that the research aimed to examine the construct of value, which is subjective in nature, the study might be limited with respect to the accuracy of the academic's perception of the value which has been generated for the different stakeholders of the UIR.

Second, following previous research on relationship renewal (Plewa, 2005) two constructs, namely *intention to renew* and *intention to expand UIR in general*, have been measured using a single-item measure. As stated by Rossiter (2002), single-item measures are appropriate when the object to be studied is rather unambiguous. Following the comment of Diamantopoulos (2005) on Rossiter's work, it has to be critically evaluated whether an objective can be regarded as unambiguous. With respect to the usage of single-item measures in this research it has to be acknowledged that both measures could be regarded as inconclusive. For example, the construct *intention to renew*, operationalized as "In view of your intentions, please indicate the likelihood that you will try to work again with [Partner] in the future" could be interpreted in multiple ways. By using the word "again" it might be unclear if the statement includes or excludes the continuity of the relationship without a break in between. In the same vein, the item *intention to expand UIR in general*, operationalized as "In view of your intentions, what are the chances that you will try to expand your relationships with business in general" might have been

understood differently. For example, it is not specified if the expansion also includes the intensification of relationships which are already existing, but not reported on in the survey.

Third, in order to improve model's parsimony this research made use of the opportunity to re-specify the model based on modification indices provided by IBM SPSS AMOS 20. As Diamantopoulos and Siguaw (2000) highlight, re-specifications are exploratory in nature and it is key to justify any changes made to the original model. While the changes made to the model have been discussed in this research, it has to be noted that they might build on the specific characteristics of the sample taken in this research. In other words, the re-specifications made might be different when taking a different sample. Thus, the final path model is limited to the sample used in this research and needs to be validated with an independent sample in order to be able to generalise the results beyond the given sample.

Fourth, while the conceptual framework has been developed based on general literature, the qualitative and quantitative studies have focused on England only in order to avoid any impact of cultural issues (e.g. value perceptions) and differences with respect to national higher education / business systems. As a result, the generalisation of findings to other countries might be limited.

Despite the limitations highlighted above, this research's contributions to both theory and practice are apparent and will be discussed in detail in the following two sections.

6.4 Contributions to Theory

This study has integrated the established research fields of ST and RM, and the emerging field of UIRs. The following two sections outline the theoretical contributions made by this research, separated into the two parent theories, ST and RM, and the field of application, UIRs.

6.4.1 Contributions to ST and RM Literature

O'Malley & Tynan (1999, p. 595) state that people "are more interested in the attraction of the relationship metaphor than in Relationship Marketing itself. Practi-

tioners appear to have borrowed the language without adopting the underlying values of relationship marketing”. While RM research made significant advancements in the past decades and it might thus be more developed than RM practice, many questions still remain, such as question on value creation. A need for further research can also be acknowledged in ST. Laplume et al. (2008) highlight that much attention has been given to social issues in ST since 1999 and that “strategic emphasis of the theory has been underemphasized in recent years” (p. 1181). Agreeing with Harker and Egan (2006, p. 234) “that the type, workings and influence of the relationship ‘black box’ is certainly worthy of much more study”, this research followed Rowley’s (1997) suggestion to move beyond resource dependence theory and focused on a set of stakeholders in a relational context, ultimately making several contributions to both ST and RM.

First and foremost, this research extends ST and RM by having integrated the two literature streams and having developed an integrated model with a specific focus on value creation. The study, however, does not only address the missing true integration of the two, as highlighted by Polonsky (1999), but also the limited research on multi-stakeholder approaches (Hult et al., 2011). Taking into account different stakeholders, stakeholder values were confirmed to be a key predictor of overall relationship value. Rather than focusing on just one perspective, this research integrated the individual stakeholder perspective (value generated for different stakeholders) with the relationship perspective (overall value perceived). In line with the different perspectives, this research used a multi-level approach incorporating the individual level, group level, organisational level and relationship level. Nielsen (2010, p. 2) highlights the value of such multi-level research by stating that “multilevel theory development can help integrate [...] theories operating at different levels and specify the links between concepts from different levels of analysis. In particular, interactions between factors at different levels offer potential avenues for advancing strategic alliance research”. While this research did not look at strategic alliances, but relationships in general, significant contributions to theory, resulting from the multi-level research approach, can be observed.

Considering the focus of current research on relationship characteristics as antecedents of relationship value and further relationship outcomes (Homburg et al., 2003; Knemeyer & Murphy, 2005; Palmatier et al., 2006; Frاسquet et al., 2012;

Tarasi et al., 2013), and the single benefit and sacrifices dimensions forming the relationship value construct (for overviews refer to Ulaga & Eggert, 2005; Berry and Terry, 2008; Biggemann & Buttle, 2012), this research extended our understanding by proving stakeholder value to be a mediator between relationship characteristics and relationship value. Specifically referring to the relationship between commitment and relationship value, Sharma (2008) notes “[M]ost empirical and conceptual models have focused on the direct link between these variables”, thus highlighting the missing investigation of mediators in past research.

The new perspective of stakeholder value being at the centre of the relationship value creation process has been further detailed by highlighting the interdependencies between the different value constructs. With value being a construct which can be assessed at any time (before, during and after the relationship), these interferences also highlight the dynamic nature of the new perspective. By conceptualising stakeholder value at the centre of the relationship value creation, and linking the different stakeholder value constructs, this research contributes to gaining a better understanding of the dynamics stakeholder value generation can have on relationship outcomes, including relationship value, with the ultimate goal being to overcome the limitations of single value construct research performed in the past. Thus, this research followed Rowley’s (1997) call for stakeholder research going beyond resource dependence theory and focus on a set of stakeholders or stakeholder network in a relational context.

Second, the integration of the constructs *Common Understanding of Expectations* and *Commonness of Expectations* contributes to RM literature by separating the partner’s overlap of expectations (or shared goals) and the transparency of the expectations regarding the outcomes of the relationship. This separation allows identifying whether a missing overlapping of expectations is a result of missing communication or a missing compatibility of the expectations. While past research has integrated several forms of communication as additional constructs to shared expectations, goals or vision (Farmer et al., 1998; De Bussy et al., 2003; Li, 2005; Liao, 2006), no study has been found that examined the effect of communication or mutual understanding on these relationship characteristics. Addressing this missing link in past research, this research has examined two theoretically distinct con-

structs for the common understanding of expectations as well as for the commonness of expectations with respect to the outcomes of the relationship, advancing RM theory and more specifically our understanding of the interrelationship between relationship characteristics.

The findings of this research extend the research conducted by Holm et al. (1996). In their work, the authors took a process perspective on what they call relationship understanding. Relationship understanding highlights “[i]f the partners have a mutual understanding concerning how to coordinate their exchange activities”. Using SEM, they confirm a direct effect of relationship understanding on relationship commitment. This research thus contributes to RM literature by having closed the knowledge gap if a common understanding regarding outcomes effects relationship commitment similar to a common understanding regarding the relationship process, as researched by Holm et al. (1996).

Third, this study contributes to research on relationship outcomes by separating the intention to renew and the intention to expand. While most research in RM has focused on the intention to renew, relationship continuity or loyalty (Morgan & Hunt, 1994; Lee, 2000; Daniel et al., 2002; Plewa, 2005; Kuo & Ye, 2009), few scholars have investigated the intention to expand as part of RM research (Homburg et al., 2003; Ulaga & Eggert, 2006). Existing studies on expansion, however, focus on the expansion of the relationship with the same partner and do not consider an expansion of the same activities with a different partner. Aiming to address this limitation, this research has integrated a construct on the expansion with a different partner, and examined its relationship with other relationship outcomes such as WOM, relationship value and satisfaction. Thus, this research extends RM theory with respect to better understanding how growth can be fostered beyond the current relationship.

Lastly, this research contributes to ST literature by applying it in a context different to the ones generally used. As Phillips et al. (2003, p. 495) state: “stakeholder theory to truly come into its own as a theory of strategic management and organizational ethics, it will need to be applied to more than just the large, publicly held corporation”. This research has integrated ST in the RM context and, more importantly, applied it in the context of UIRs. Thus, the results challenge existing ST

literature and give rise to new question, ultimately contributing to the further development of the field.

To summarise, this research contributes to ST and RM literature by (1) extending the integration of ST and RM, using a multi-level, value-focused research approach and putting stakeholder value at the core of the relationship value creation process, (2) enhancing our understanding on relationship characteristics by investigating the common understanding of expectations and commonness of expectations, (3) broadening our view of relationship outcomes by investigating the intention to expand beyond the current relationship, and (4) applying ST in the UIR context.

6.4.2 Contributions to UIR Literature

Next to its contribution to ST and RM literature, this research contributes to UIR literature through the development and empirical validation of a holistic model on value creation in UIRs. The integration of knowledge, models and constructs from ST and RM and the application of the developed model in the context of English UIRs extends our understanding on the complex interrelationship between relationship characteristics, stakeholder values and relationship outcomes. Partly mirroring the contributions stated in the previous section, several contributions to UIR literature can be outlined.

First, this research contributes to our understanding of the UIR value creating process by developing a holistic model integrating constructs ranging from the very foundation (expectations, commitment) to the outcomes of relationships (WOM, renewal and expansion intentions). Incorporating RM and ST in the context of UIRs, the study addresses the limited application of RM in the UIR context, as outlined by Frasquet et al. (2012) and Plewa et al. (2013), and contributes to further opening up Perkmann et al.'s (2013) "black box" of the value creation process (see section 1.3). More precisely, this research identified and linked the main relationship characteristics driving UIRs, the key stakeholder groups and the value created for them, as well as central relationship outcomes. For example, this research recognised expectations as a central UIR characteristic in the qualitative interview phase and integrated it in form of two constructs (common understanding of expectations and commonness of expectations) in the later quantitative research step.

With this integration, the research followed Mindruta's (2013) call to not focus on the benefits UIRs provide but on the underexplored sources of value creation in UIRs.

Second, this research has conceptualised and empirically proven the interdependences existing between different UIR stakeholder value constructs, thus offering the first known empirical examination of value creation across different stakeholder value constructs in UIRs. Following Freeman et al.'s (2010) call, referring to Bhattacharya and Korschun (2008), Jackson (2001) and Kotler (2003), to integrate a wider set of stakeholders, this research points out the interrelationships between six stakeholder groups, namely the academic surveyed, the academic team, the university, the business partners, students as well as society. The results show that the (expected) value created for the university takes a central role in UIR value creation as it positively influences all other stakeholder values. In addition, the academic's and the business partner's value were found to positively impact the academic team, highlighting further impacts to be taken into account when designing UIRs. Overall, the research sheds light on the dynamic nature of UIR value creation and enhances our understanding of the "jointness" in value creation, a key tenet of ST put forward by Freeman since its introduction (Freeman, 1984).

Third, this research contributes to UIR literature by an empirical examination of the key drivers of relationship value and further relationship outcomes. First, and foremost, the results indicate which stakeholder values are important for an academic in the overall evaluation of a UIR. Surprisingly, the results indicate that academics take into account all stakeholder values, except the ones for the business partner and students – two key groups in the university respectively UIR setting. While potential explanations for these findings have been provided in the discussion of the empirical results, the findings shed new light onto the value perception of academics and are expected to contribute to the further discussion and investigation on how value is perceived and how value can be generated in UIRs. Next to the impact of stakeholder values on the overall relationship value as perceived by the academic surveyed, this study contributes to UIR literature by highlighting the different drivers of further UIR outcomes, namely relationship satisfaction, WOM, intention to renew, and intention to expand. The results show that the researched

relationship outcomes are driven by different sets of stakeholder values, contributing to our understanding how each outcome can be strategically fostered in UIRs. Especially the results on the academics' intention to expand UIR activities beyond the current relationship extend our current knowledge, considering that the concept has hardly received any attention, with only descriptive data results being found in literature (Lee, 2000).

In brief, this research contributes to UIR literature by (1) broadening our understanding on value creation in UIR through a holistic, multi-stakeholder model, (2) enhancing our understanding of the interdependences in stakeholder value generation, and (3) empirically examining the different stakeholder values driving relationship outcomes.

Having discussed this study's contributions to the different literature streams of this research, the following sections will outline practical contributions.

6.5 Contributions to Practice

Besides the contributions this research makes to theory, several practical contributions and managerial implications can be presented. From a broad perspective, this research contributes to practice by further opening up the "black box" of value creation in UIRs and presenting practitioners key elements to be taken into account when designing and managing UIRs. Especially the integration of the relationship / RM and the individual stakeholder / ST perspective can be regarded as novel as "there are very few substantive empirical studies of the nature of stakeholder marketing practices" (Knox & Gruar, 2007, p. 116).

First, this research highlights the importance of expectations and their management in UIRs. Given the different cultures of the university and business sectors (Mora-Valentin, 2000) and the complexity of many projects undertaken at this interface, it is important for all stakeholders to clearly communicate expectations and aim for creating a high degree of overlapping between the expectations. The results outline that the common understanding of expectations and the commonness of expectations are not only important to drive relationship commitment, but that they also have a direct impact on relationship outcomes. A common understanding of

expectations helps to set the expectations right and thus contributes to an academic's relationship satisfaction as this satisfaction is based on the comparison of the perceived and expected performance (Gerson, 1994; Anton, 1997). Similarly, the commonness of expectations should not only be seen as an antecedent of commitment, but as a value in itself. The results indicate that next to commitment, the commonness of expectations has a high impact on the academic's perceived value of a relationship, and should thus be well managed.

Second, this research outlines the interdependences between stakeholder values. Rather than separating the creation of value for the different relationship stakeholders, this research highlights how the value is linked, and thus suggesting to look at UIR value creation from a holistic, multi-stakeholder perspective, in line with the "jointness of interest" tenet of ST (Freeman, 1984). The results show the strategic importance of value creation for universities as they are key actors that influence the value (to be) generated for other stakeholders. Considering the interdependences between stakeholder value constructs found in this research, it might make sense for practitioners to strategically map the (expected) values generated for the different stakeholders in order to identify issues or areas for improvement (e.g. if a lower motivation of academics is perceived by the university or business partner).

Third, and central in this research, the results show what academics value in a relationship and what not. For example, this study found that academics appreciate if UIRs create value not only for themselves, but also for their fellow academics (the academic team), the university and society, whereby value created for students and the business partner were not found to positively impact an academic's UIR assessment. These results have direct impact on the communication and design of UIRs. For example, communicating that UIRs "support businesses to grow" might not be a good strategy. Rather, it might be better to promote that academics can help developing technologies together which businesses that can be scaled around the globe and make a true impact to society.

In addition, this research results provide new insights into how further relationship outcomes can be driven through stakeholder value creation in UIRs. Having investigated how the value created for the academic, the academic team, the university, students, the business partner and society affects relationship satisfaction, WOM as well as the intention to renew the relationship with the business partner

and the intention to expand UIR activities beyond the current relationship(s), the results provide a basis for the creation of strategies on how to strategically foster the generation of specific relationship outcomes. For example, if university managers would like to foster WOM, they should identify those academics who have worked or still work in relationships creating value for students, society and the academic team, rather than those working in relationships primary creating value for the academic itself, the university or the business partner.

As Polonsky's (1995, p. 44) states "Stakeholder theory is a useful tool for marketing theory and practitioners. But more study into its application for marketing, including environmental marketing, maybe help industrial marketers develop the most effective strategies". The identification of relationship outcome drivers, thus, can be considered as a step forward with respect to an efficient stakeholder-based marketing management.

The following table presented selected managerial implications from this research, structured by the three research quesitons of this study.

| Key findings | Central finding details | Managerial implications |
|--|---|--|
| <i>Relationship Characteristics Driving Stakeholder Value</i> | | |
| The common understanding of expectations, the commonness of expectations and calculative commitment are key drives of UIR value creation | Not only the commonness is important, but also the sharing already | <i>For all direct relationship stakeholders</i> <ul style="list-style-type: none"> • Establish a mutual understanding of the expectations of each party involved at the beginning • Write down the discussed expectations • Outline common and different expectations, highlight and discuss conflicts of interest • Communicate during the relationship if expectations have changed |
| <i>Interdependences between stakeholder values</i> | | |
| The (expected) value generated for one stakeholder might affect the value generated for other stakeholders | The university is a central actor in UIRs. If the university receives value, the other stakeholders receive more value as well | <i>For academic staff and businesses</i> <ul style="list-style-type: none"> • Identify the benefits and sacrifices dimensions for the university • Keep the promises / deliver the value • Measure and assess the value generated for the university throughout the relationship (e.g. through feedback loops) and adjust strategies and actions, if necessary |
| <i>Drivers of relationship outcomes</i> | | |
| Relationship outcomes are driven by different sets of stakeholder values | When evaluating a relationship's value, academics take into account the value created for all other stakeholders, expect the value created for business | <i>For all those who want to promote UIRs among academics</i> <ul style="list-style-type: none"> • Individual UIR promotion: Understand which stakeholder values are central in an academic's evaluation of UIRs • Generally speaking, communicate the value the UIRs can create for the university and its academics and students, as well as for society; leave out the value generated for business • Create an understanding that businesses are required "vehicles" to make an impact to society • If possible, match UIRs and academics with respect to the value the UIR is expected to provide / the value the academic is looking for |
| | Only student and university value foster expansion intentions; WOM is fostered by academic team, society and student value. [...] | <i>For universities</i> <ul style="list-style-type: none"> • Identify your strategic needs (WOM, renew relationships, expand UIR activities) • Classify past projects as based on their ability to foster the strategy (taking into account the value generated for the different stakeholders) • Approach academics who worked in the respective project to foster WOM, UIR renewal / expansion |

Table 31: Managerial Implications

6.6 Directions for Future Research

UIRs are not a new phenomenon, still many of these relationships fail to provide the value expected, pointing towards the need to conduct further research in this field. While this research contributed to the advancement of theory and practice with respect to value creation in UIRs, several directions for future research can be given.

First, research is required to address the issue of path model re-specification in this research. As model re-specification is an exploratory activity and the results may rely on the characteristics of the sample taken in this research (Diamantopoulos and Siguaw, 2000), further research is needed where the re-specified model of this research is validated by a confirmatory approach.

Second, further research would benefit from integrating data from different stakeholders of UIRs with respect to value creation in UIRs. Acknowledging that studies with multiple data sources are hard to achieve (Lambe et al., 2002), a dyadic approach is recommended as a starting point, integrating the responses from academics (preferably those responsible for managing the relationship) as well as from industry representatives. Assuming that academics can well respond on the value generated for their academic team, students and the university, business representatives would respond on their own perceived value. The value generated for society could be based on the responses of both, the academic as well as the industry representative, providing a more balanced view on society costs and benefits. Following Plewa's (2005) call for more UIR research based on dyadic studies, the integration of relationship characteristics such as mutual trust and commitment in such multi-sided data studies would provide further insights into how the value is created in the first place, or, as Mindruta (2013) puts it, the sources of value creation in UIRs.

Third, this research has emphasized the examination of stakeholder value at the centre of the relationship. While this research provided significant insights into the interdependences of the value constructs of different stakeholders on a higher level, future research could contribute to better understand how the individual benefit and

cost dimensions of the different stakeholders are linked. For example, the publication of novel research results can be considered a benefit for academics, while it would be a cost for the business partner.

Fourth, building upon the separation of the constructs common understanding of expectations and commonness of expectation in this research, future research is recommended to better understand the relationship between these separate constructs and other relationship characteristics such as trust, integration or communication.

Fifth, further research is needed to enhance the understanding of how universities can strategically foster specific relationship outcomes, such as the ones examined in this research (WOM, relationship satisfaction, intention to renew, intention to expand UIRs in general). For example, while no significant relationship has been found between the value provided to business and the academic itself and WOM, indicating that the academic might not want to look self-seeking or be considered as an extension of business organisations, some academics might have a different opinion / attitude with respect to this. Research could aim to identify clusters of academics with the same attitude, allowing the development of target-specific (marketing) strategies and activities to foster the intended relationship outcomes.

Lastly, as part of this research, a large dataset on UIRs has been generated. However, due to the focus of this thesis, the usage of the data was limited to a rather small subset of the sample. Using this unique dataset, future research is recommended to better understand value creation in specific sub groups. For example, the dataset of more than 4000 responses could be split with respect to the main research fields according to CERIF, relationship characteristics such as relationship length or communication frequency, or respondent characteristics such as age or current position in academia and business. In addition to the creation of sub groups, additional constructs for which data has been collected during this research, namely trust and future expectations, could be used to test further theories going beyond the scope of this research.

6.7 Chapter Summary

This chapter elaborated on the results presented in the previous chapters. A detailed discussion of the qualitative and primary quantitative research findings, with the latter including model re-specification and hypothesis testing, was presented. Right after the discussion on key relationship characteristics driving value creation in UIRs (research gap 1), the relationships between the value constructs of different stakeholders were elaborated (research gap 2). Lastly, key drivers of the overall perceived relationship value in UIR as well as further relationship outcomes were discussed (research gap 3).

Following the discussion of the research findings, limitations to be considered in the interpretation of the results were outlined. Leading from this, contributions to theory, including the three literature streams RM, ST and UIRs, as well as contributions to practice, including managerial implications were highlighted. Finally, taking into account the contributions and limitations of this research, directions for future research were given.

APPENDICES

Appendix 1: Stakeholder Benefits

Slightly adapted from the work of Davey (2015), the following tables outline key benefits for the main stakeholders of UIRs.

Benefits for universities

| Type | Benefits |
|-------------------|---|
| Strategic capital | <ul style="list-style-type: none"> • Improves capabilities of academics (van der Sijde, 2012) • Improves preparation of students for future professional challenges in industry (Strunz et al., 2003) • Improves university productivity (Kruss et al., 2011) • Assists universities to fulfil their ‘third mission’ responsibilities (van der Sijde, 2012; Davey et al., 2011; Drucker & Goldstein, 2007; Strunz et al., 2003; Carayol, 2003) • Increases motivation for innovation (Ilyas, 2004; Gray, 2000) • Retention (Plewa et al., 2005) • Improves university reputation and image (Ahrweiler et al., 2011; van der Sijde, 2012; Strunz et al., 2003) |
| Network capital | <ul style="list-style-type: none"> • Contributes to the employment record of the university’s graduates. (Strunz et al., 2003) |
| Cultural capital | <p><i>Research-related</i></p> <ul style="list-style-type: none"> • Provides original findings and new approaches in problem solving (Debackere & Veugelers, 2005) • Exchanges key technical and business knowledge (Carayol, 2003) • Reduces cost in training of academics (Shahabudin, 2006) • Provides practical application of research results (Lee, 2011) • Improves relevance of research and connected with the needs of the local market (Gibbons et al., 1994; Gibbons, 1997; Lee, 2011; Tucker, 2002) • Provides access to industrial knowledge (Arvanitis et al., 2008) • Provides access to applied technological areas (Santoro and Chakrabarti, 2002) • Increases total papers published and citations (The Library House, 2006) <p><i>Education-related</i></p> <ul style="list-style-type: none"> • Supports curriculum development through increased relevance of learning outcomes, teaching content methods, learning methods as well as student assessment (Gillis & McNally, 2010; Shahabudin, 2006) • Supports curriculum delivery through the provision of real life experiences hands-on internship, training and field projects (Wilson, 2012; Shahabudin, 2006) • Supports program evaluation through immediate feedback on adequacy, the development of new courses and long term on graduate performance (Shahabudin, 2006) • Creates new workshops, seminars and industry designed courses (Wilson, 2012; Shahabudin, 2006) |

| | |
|------------------|--|
| | Improves relevance of teaching and curriculum development and delivery (van der Sijde, 2012; Kruss et al., 2011; Lamichhane & Nath Sharma, 2010; Carayol, 2003) |
| Economic capital | <p><i>Commercialisation-related</i></p> <ul style="list-style-type: none"> • Sources of income (Bercovitz & Feldman, 2006) <p><i>Access to funding</i></p> <ul style="list-style-type: none"> • Sources of funding (van der Sijde, 2012; Lee, 2011; Wood, 2011; Plewa et al., 2005; Ilyas, 2004; Carayol, 2003; Barnes et al., 2002; Morgan & Strickland, 2001; Gray, 2000; Jankowski 1999) <p><i>Access to in-kind resources</i></p> <ul style="list-style-type: none"> • Provides access to companies resources and investments (German Centre for Research and Innovation, 2013) • Provides access to educational resources such as state of the art training facilities like laboratories, workshops and manufacturing plants (Shahabudin, 2006) |

Benefits for businesses

| Type | Benefits |
|-------------------|---|
| Strategic capital | <ul style="list-style-type: none"> • Accesses new discoveries at an early stage (Lee 2000, Kock et al. 2000, Bonaccorsi & Piccaluga, 1994) • Improves attractiveness as prospective employers (Ginzburg & Houli, 2013; Perkmann et al., 2011) • Creates the appropriate climate for change due to the infusion of new ideas (Kock et al., 2000) • Stimulates innovation (Kaufmann & Tödtling, 2001) • Advances technologically (Barnes et al., 2002; Cohen et al., 2002) • Improves corporate image (Santoro & Chakrabarti, 2002; Van der Sijde, 2012; Bonaccorsi & Piccaluga, 1994) • Improves reputation (Van der Sijde, 2012; Perkmann et al., 2011) • Accesses techniques and instruments that enable industry to develop new technologies (Rosenberg, 1992) • Leverages their R&D investment (Perkmann et al., 2011) • Provides increased retention of staff (Plewa et al., 2005) • Increases competitive advantage (Tresseras et al., 2005; Tucker 2002) |
| Network capital | <ul style="list-style-type: none"> • Provides expertise in a new field (Berman, 2008) • Improves access to faculty members as knowledge sources or consultants (Maggiora, 2008; Berman, 2008; Tresseras et al., 2005, Santoro & Chakrabarti, 2002; Kaufmann & Tödtling, 2001) • Increases access to skilled and knowledgeable employees for the purpose of recruitment or acquisition (Ginzburg & Houli, 2013; Perkmann et al., 2011; Bekkers & Freitas, 2008; Maggiora, 2008; Shahabudin, 2006; Tresseras et al., 2005; Bonaccorsi & Piccaluga, 1994) • Improves quality of recruitment by allowing firms to better identify, recruit and integrate graduates with best fit (German Centre for Research and Innovation, 2013; Ginzburg & Houli, 2013; Shahabudin, 2006; Strunz et al., 2003; Kock et al., 2000) • Improves quality of recruitment by providing access to top students (Kock et al., 2000) |

| | |
|------------------|---|
| | <ul style="list-style-type: none"> • Enables firms to participate in networks focused on specific technical or scientific subject areas (Perkmann et al., 2011) • Provides opportunities for engaging academics as collaborators or consultants (Perkmann & Walsh, 2008) • Strengthens network (Van der Sijde, 2012; Plewa et al., 2005) |
| Cultural capital | <ul style="list-style-type: none"> • Assists with the completion of projects or products (Perkmann & Walsh, 2009; Cohen et al., 2002; David et al., 1992; Zucker et al., 2000) • Provides entrepreneurial inspiration (Wood, 2011; Bercovitz & Feldman, 2006) • Provides insights into emerging technologies (Perkmann et al., 2011) • Contributes to project completion (Perkmann et al., 2011) • Provides new research suggestions (Cohen et al., 2002) • Stimulates company's internal R&D programs (Bercovitz & Feldman, 2006) • Maintains multiple research directions and aids in the renewal and expansion of a company's science and technology base (Maggiora, 2008; Bonaccorsi & Piccaluga, 1994) • Accesses problem-solving capabilities (Van der Sijde, 2012; Lee, 2011; Perkmann et al., 2011; Debackere & Veugelers, 2005; Bonaccorsi & Piccaluga, 1994) |
| Economic capital | <ul style="list-style-type: none"> • Provides new product and services (Jones & Clulow, 2012; Bekkers & Freitas, 2008; Bercovitz & Feldman, 2006; Strunz et al., 2003) • Reduces R&D risk (Bekkers & Freitas, 2008; Barnes et al., 2002; Barnes et al., 2002; Santoro & Chakrabarti, 2002; Carayol 2003) • Reduces R&D expense (Van der Sijde, 2012; Bekkers & Freitas, 2008; George et al., 2002; Barnes et al., 2002; George et al., 2002; Caloghirou et al. 2001) <p><i>Commercialisation-related</i></p> <ul style="list-style-type: none"> • Provides intellectual property rights e.g. patents (Van der Sijde, 2012; Tresseras et al., 2005; Tucker 2002) • Provides future income (Huang & Yu, 2011; Caloghirou et al., 2001; Lee, 2000) • Increases shareholder value (Van der Sijde, 2012) <p><i>Access to funding</i></p> <ul style="list-style-type: none"> • Reduces cost in training (Shahabudin, 2006) • Reduces cost in hiring (Strunz et al., 2003) <p><i>Access to in-kind resources</i></p> <ul style="list-style-type: none"> • Obtains data (Berman, 2008) |

Benefits for university staff

| Type | Benefits |
|-------------------|--|
| Strategic capital | <ul style="list-style-type: none"> • Increases professionalism (Van der Sijde, 2012) • Increases academic or scientific reputation (Van der Sijde, 2012; Davey et al. 2011) |
| Network capital | <ul style="list-style-type: none"> • Improves access to industry partners and networks (Bozeman et al., 2012; Van der Sijde, 2012; Garrett-Jones et al., 2010; D'Este & Perkmann 2011) |
| Cultural capital | <p><i>Research-related</i></p> <ul style="list-style-type: none"> • Provides increased publications (Jones & Clulow, 2012; Van Looy et al., 2006; Breschi et al., 2007; Gulbrandsen & Smeby, 2005) • Provides sabbatical opportunities for faculty (when academic mobility) (Maggiora, 2008) |

- Exposes gaps in knowledge (D'Este & Perkmann, 2011; D'Este & Patel, 2007; Grossman et al., 2001)
- New relevant skills and competencies (Van der Sijde, 2012)
- Ability to test application of a theory (Carayol, 2003)
- Increases scientific productivity measured in quality and quantity of articles (Abramo et al., 2009; Beaver, 2004; Zucker & Darby, 1996)
- Exposure to significant interesting and relevant “real world” problems (Maggi-ora, 2008; D'Este & Patel, 2007; Strunz et al., 2003)
- Provides opportunities to transfer theoretical ideas into practical projects and to implement research in the real world (Ginzburg & Houli, 2013)
- Provides intellectual benefits (Dutrenit et al., 2010)
- Provides inspiration for academic research (D'Este & Perkmann, 2011; Grossman et al., 2001)
- Creates superior and more authoritative research performance measured through journal citation rate and citation lifetime (Jones & Clulow, 2012; Abramo et al., 2009; Beaver, 2004; Zucker & Darby, 1996)

Education-related

- Informs teaching curriculum development and delivery (Van der Sijde, 2012; Lamichhane & Nath Sharma, 2010; Carayol, 2003)
- Provides inspiration for teaching (Van der Sijde, 2012)
- Access to presenters and supervisors for course delivery (Shahabudin, 2006)
- Access to educational resources and state of the art training facilities such as laboratories, workshops manufacturing plants (Shahabudin, 2006)
- Creates new workshops and seminars (Shahabudin, 2006)

Economic
capital

Commercialisation-related

- Provides income / personal financial gain (Wood, 2011; D'Este & Perkmann, 2011; D'Este & Patel, 2007; The Library House, 2006)
- Establishes business ventures or opportunities for business establishment (Shahabudin, 2006)

Access to funding

- Provides funding for research (Wood, 2011; D'Este & Perkmann, 2011; D'Este and Patel, 2007; Carayol, 2003; Morgan & Strickland, 2001; Jankowski, 1999)

Access to in-kind resources

- Provides access to equipment and resources (Tartari & Breschi, 2011; D'Este & Perkmann, 2011; D'Este & Patel, 2007; Carayol, 2003; Nedeva et al., 1999)

Benefits for business staff

| Type | Benefits |
|-------------------|---|
| Strategic capital | <ul style="list-style-type: none"> • Enhances professional reputation (Van der Sijde, 2012; Lawson & Samson, 2001) • Increases chances of promotion through fulfilment of job objective (Lawson & Samson, 2001) |
| Network capital | <ul style="list-style-type: none"> • Provides easier access to university graduates and faculty members (Tresseras et al., 2005; Santoro & Chakrabarti, 2002; Berman, 2008; Kaufmann & Tödtling, 2001) |

| | |
|------------------|--|
| | <ul style="list-style-type: none"> • Provides access to research results and outcomes (Ginzburg & Houli, 2013; Tresseras et al., 2005) |
| Cultural capital | <p><i>Research-related</i></p> <ul style="list-style-type: none"> • Up-skills existing employees (Van der Sijde, 2012; Wilson 2012; Santoro & Chakrabarti, 2002) • Stimulates internal researchers within the firm through exposure to academic research (Bonaccorsi & Piccaluga, 1994) • Maintains multiple research directions (Bonaccorsi & Piccaluga, 1994) • Exposes to new ideas and start of the art (Santoro & Chakrabarti, 2002, Bonaccorsi & Piccaluga, 1994) <p><i>Education-related</i></p> <ul style="list-style-type: none"> • Provides opportunities for higher (quality) education (Ginzburg & Houli, 2013) • Provides access to technical skills, knowledge and facilities (Lee, 2011; Santoro & Chakrabarti, 2002; Kaufmann & Tödtling, 2001; Santoro & Chakrabarti, 2002) • Provides knowledge spill-overs and knowledge-exchange (Hanel & St-Pierre, 2006; Bekkers & Freitas, 2008; Barnes et al., 2002; Caloghirou et al., 2001) |
| Economic capital | <p><i>Commercialisation-related</i></p> <ul style="list-style-type: none"> • Provides opportunities to increase salary through bonuses and share issue (Lawson & Samson, 2001) |

Benefits for students

| Type | Benefits |
|-------------------|--|
| Strategic capital | <ul style="list-style-type: none"> • Improves employability of graduates (European Commission, 2009) • Aligns studies to the real needs of the cooperating company and thus provides a good start in high-expertise jobs (Ginzburg & Houli, 2013) • Provides opportunities for current and future employment opportunities (Bozeman & Boardman, 2013; Van der Sijde, 2012; Dutrénit et al., 2010; Lamichhane & Nath Sharma, 2010; Maggiora, 2008; Drucker & Goldstein, 2007; Ilyas, 2004; Carayol, 2003; Strunz et al., 2003; Santoro & Chakrabarti, 2002; Benneworth, 2001; Kock et al., 2000; Gray, 2000; Knouse et al., 1999) • Provides additional motivation (Strunz et al., 2003) |
| Network capital | <ul style="list-style-type: none"> • Extends personal network (Van der Sijde, 2012; Strunz et al., 2003) • Provides internship opportunities (Shahabudin, 2006) • Provides mentors from industry for developing future career ladders in the corporate world (Bozeman & Boardman, 2013; Hedvall, 2011) |
| Cultural capital | <ul style="list-style-type: none"> • Increases practical skills knowledge and experience (Van der Sijde, 2012; Davey et al., 2011; Drucker & Goldstein, 2007; Feller, 2005; Ilyas, 2004; Carayol, 2003; Chesbrough, 2003; Gray, 2000) • Provides extended 'training on the job' (Ginzburg & Houli, 2013) • Develops soft skills (Strunz et al., 2003) • Develops communication and presentation skills (Strunz et al., 2003) • Develops time management and relevant organisation skills (Strunz et al., 2003) • Provides early publications (Bozeman & Boardman, 2013) • Provides understanding of companies as well as the current challenges and management topics (Ginzburg & Houli, 2013) • Provides an opportunity to put concepts and theories learned in class in practice (Ginzburg & Houli, 2013; Kock et al., 2000) |

| | |
|------------------|--|
| | <ul style="list-style-type: none"> • Exposes to interesting and relevant “real world” problems adding a valuable dimension to the learning process (Maggiora, 2008; Kock et al., 2000) • Provides education in new methodologies (Ginzburg & Houli, 2013) |
| Economic capital | <ul style="list-style-type: none"> • Provides income from employment (Hedvall, 2011) • Increases students value (as an employee) in the marketplace (Van der Sijde, 2012; Davey et al., 2011) • Enables higher starting salaries (Gault et al., 2000) <p><i>Commercialisation</i></p> <ul style="list-style-type: none"> • Establishes business ventures or opportunities for business establishment (Shahabudin, 2006) <p><i>Access to funding</i></p> <ul style="list-style-type: none"> • Financial support (Harmann, 2001) • Provides funding (Hedvall, 2011) <p><i>Access to in-kind resources</i></p> <ul style="list-style-type: none"> • Provides industry data for the student’s project (Hedvall, 2011) |

Benefits for society

| Type | Benefits |
|-------------------|---|
| Strategic capital | <ul style="list-style-type: none"> • Provides structural change in developing countries (Liefner & Schiller, 2008; Mazzoleni, 2008; Schiller & Brimble, 2009) • Creates a positive impact in the development of National, State, and Local Tax Bases (Bercovitz & Feldman, 2006) • Creates innovative products and technologies (Bercovitz & Feldman, 2006) • Provides crucial inputs for competitiveness of an economy through entrepreneurship (European Commission, 2003) • Assists the interests of society in general through entrepreneurship (European Commission, 2003) • Gains and maintains national/international competitiveness (European Commission, 2007; Cuervo et al., 2007; European Commission, 2006; Maes, 2003) • Allows flexibility and responsiveness to uncertainty and rapidly changing economic circumstances (Drucker & Goldstein, 2007) • Increased attractiveness of the region/city (European Commission, 2003) |
| Network capital | <ul style="list-style-type: none"> • Builds centres of excellence (Bonaccorsi & Piccaluga, 1994) • Develops a knowledge-based economy (Gibb & Hannon, 2006) • Promotes innovation and technology transfer (Ssebuwufu et al., 2012) |
| Cultural capital | <ul style="list-style-type: none"> • Provides more relevant knowledge and skills (Davey et al., 2011; Razvan & Dainora, 2009; Storm, 2008; Gibb & Hannon 2006) • Increases knowledge and technology creation transfer and exchange (Van der Sijde, 2012; UNISO 2002-2004; Etzkowitz & Leydesdorff, 2000) • Provides problem solving capabilities (Van der Sijde, 2012; Etzkowitz & Leydesdorff, 2000) • Improves solutions for society problems and therefore improved satisfaction of needs (European Commission, 2003) • Ensures that graduates have the skills and knowledge required to effectively contribute to the workforce (Ssebuwufu et al., 2012) • Unlocks personal potential through entrepreneurship (European Commission 2007; OECD, 2006; European Commission, 2003) • Improves the educational system (Van der Sijde, 2012) |

| | |
|------------------|---|
| Economic capital | <ul style="list-style-type: none"> • Creates entrepreneurs and new business start-ups (European Commission, 2003) • Contributes to an increase in wealth of the poor through entrepreneurship (European Commission, 2003) • Provides employment and job creation (European Commission, 2011; Cuervo et al., 2007; Maes, 2003) • Increases new-firm births (Kirchhoff et al., 2002) • Contributes to job creation and growth through entrepreneurship (European Commission, 2003) • Improves the living conditions in society (Gibb & Hannon, 2006) • Provides sustained economic development and growth (Liefner & Schiller, 2008; Mazzoleni, 2008; Schiller & Brimble, 2009; Cuervo et al., 2007; Maes, 2003; Tornatsky et al., 2002) |
|------------------|---|

Appendix 2: Interview Guide

Guide for in-depth face-to-face interviews with academic researchers



Interviews conducted by Thorsten Kliewe for his PhD project entitled "Value Creation in University-Industry Relationships".

1. Understanding the roles, activities and experiences of the interviewee:

Kind of university-industry relationship we are talking about:

- › Contract research, consulting, spin-offs, rather long- or short-term, with many different or the same businesses

Role of the interviewee in these relationships

- › Thinking about contract / collaborative research projects in general, what is your role in this link? What are your main activities, responsibilities ...

Extent of integration between the partners

- › Joint labs, working together in a lab, researching separately, but sharing results ...
-

2. Understanding the outcomes/value of university-industry relationships (broad perspective):

Reasoning behind university-industry relationships from a researcher perspective:

- › Why are you working with business? What is in for you? (money, reputation, ...)
-

3. Understanding the benefits and sacrifices in university-industry relationships:

General

- › How would you define a successful project with industry?

Benefits

- › In addition to technological / knowledge gain, which kind of benefits do you see in your business relationships (especially process-related benefits) ...
- › What is important for you in the process of the collaboration ("working together")
- › A relationship with a partner works well when ...

Sacrifices

- › What do you invest into relationships with business? What do you sacrifice?

Evaluation of university-industry relationships:

- › How do you / does your organisation measure collaborative research projects?
When do you consider one project more worth than another?

4. Understanding which relationship characteristics influence benefits and sacrifices most:

General

- › When thinking about past projects with industry, what are important factors driving the collaboration (specific characteristics of the people involved, fit between the groups ...)
- › What are factors hindering these relationships?

Relationship characteristics influencing benefits

- › Which factors influence the benefits you gain from a relationship with a business partner? (name again the benefits stated before)

Relationship characteristics influencing sacrifices

- › Which factors influence the investments you have to take in a relationship with a business partner? (name again the sacrifices stated before)

Trust

- › What do you think about trust in university-industry relationships?

Communication / integration

- › Which influence does communication has in these relationships?

Expectations

- › Do expectations of projects have an influence on the success of the project?

Power distance

- › Does power affect the relationship in some way?

Commitment

- › In which way do you commit to a business partner (money, technology, dedication towards a long-term partnership ...)?
-

Appendix 3: Email Invitation to the Survey



Doctoral Research on the (Expected) Value of University-Industry Relationships for Academics and Researchers in the UK

Please also take part if you did not have any relationships with industry yet.

Dear [REDACTED]

As the central part of my PhD research, I am currently conducting a **survey on university-industry relationships in the UK** with the specific aim **to better understand how the value of these relationships for academics and researchers can be driven**. You have been selected for this study due to your affiliation with [REDACTED]

As this PhD research aims to understand both the perceived relationship value of **academics and researchers involved in collaborative research, contract research, mobility, or consulting projects**, as well as the expected value of **academics without business relationships**, your participation in the survey would be greatly appreciated. It will require you to complete a survey which should not take more than 12 to 20 minutes of your time, depending on your answers given.

The survey can be accessed here:

<http://www.university-industry-survey.org.uk>

The study has **ethical approval** by Coventry University. Please be assured that the **information you provide will remain strictly confidential and anonymous**. If you would like to receive a summary report and recommendations please state your email address at the end of the survey.

If you have any questions or concerns, please do not hesitate to contact me via email on kliewet@uni.coventry.ac.uk or phone on +44 2476 980 815.

Many thanks in advance for your time and valuable contribution to my PhD research project.

Yours sincerely

Thorsten Kliewe
Final-year PhD candidate



Coventry University
Faculty of Business, Environment and Society
Priory Street, Coventry CV1 5FB

Phone: +44 2476 980 815

E-mail: kliewet@uni.coventry.ac.uk

Appendix 4: Web-based Questionnaire

Screenshot of the landing page of the web-based questionnaire

The screenshot shows a web browser window with the URL www.university-industry-survey.org.uk. The page features the Coventry University logo and the title "University-Industry Relationship Survey". A yellow button labeled "Click here to provide FEEDBACK" is in the top right. The main heading is "Survey on the (expected) value of university-industry relationships".

Dear participant,

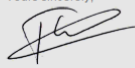
First of all, many thanks for taking the time to support this crucial part of my PhD research.


The study has **ethical approval** from Coventry University (project reference: P6423). **Participation in the study is entirely voluntary**; you can withdraw from the survey at any point of time, without giving reason and without implications for you. Please be assured that the **information you provide will remain strictly confidential and anonymous**. Answers will only be reported in aggregate so that no individual or organisation will be identifiable from any publication presenting the results of the survey. By responding to the questionnaire, your consent to take part in the study is assumed. If you would like to have further information about the project, please contact me via email (kliewet@uni.coventry.ac.uk) or phone (+44 2476 980 815).

It is **very important** that you **answer all questions**, even if some appear similar, to ensure reliable and valid measurement.

Thank you very much again for your time and your valuable contribution to my PhD research.

Yours sincerely,


Thorsten Kliewe
Final-year PhD student at Coventry University



This study aims to better understand ...

- 1 ... how academics perceive the (expected) value of relationships with businesses and how the benefits of other stakeholders influence this perception
- 2 ... how relationship characteristics such as shared expectations, trust and commitment influence the perceived value
- 3 ... how the perceived value influences the academics' satisfaction, future expectations and intentions

[next](#) ➔

Many thanks for supporting this PhD research!

Example of a questionnaire page

The screenshot shows a web browser window with the URL www.university-industry-survey.org.uk/index/page6. The page header includes the Coventry University logo and the title 'University-Industry Relationship Survey'. A progress bar indicates 37% completion. A 'Click here to provide FEEDBACK' button is visible. The main section is titled 'Mutual trust and commitment' and contains two sub-sections: 'Trust' and 'Commitment'. Each sub-section has a table of statements with radio buttons for selection.

Trust

| | Totally disagree 1 | 2 | 3 | 4 | 5 | 6 | Totally agree 7 |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Mutually, we look for what is important to the other one in the relationship | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Mutually, we are concerned about the other's welfare when making important decisions | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Mutually, we would not knowingly do anything to hurt the other one | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Mutually, we would go out of our way to help the other one | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Commitment

| | Totally disagree 1 | 2 | 3 | 4 | 5 | 6 | Totally agree 7 |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Mutually, we invest time, energy and other resources as we think the relationship will generate more benefits than costs | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Mutually, we are committed to the relationship as we are sure it will generate value | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Mutually, we dedicate resources to this relationship on the assumption it will be rewarded | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Mutually, we agree that the relationship deserves effort as the benefits will outweigh the disadvantages | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Mutually, we work hard as we expect the relationship to make a positive contribution | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

In order to contribute to the readability of the questionnaire, the content will not be presented in form of screenshots but a structured table format.

- Circles (○) represent radio buttons, meaning that only one box can be selected.
- Squared (□) represent check boxes, meaning that each box can be ticked (multiple answers are possible)
- Text highlighting (bold, underline, italics) and font colours are shown as used in the web-based questionnaire

The questionnaire will be shown for a respondent who answers based on an ongoing relationship with an academic team being involved.

Your experience

Are you or have you ever been involved in relationships with business¹ in either

- **contract research**
(activities where one or more parties perform a task for another at an agreed price and contract)
- **collaborative research**
(activities where the parties are engaged in research towards shared objectives)
- **staff mobility**
(temporary or permanent movement of researchers and other staff from universities to business, or vice versa; e.g. Knowledge Transfer Partnerships, KTP)
- **consulting**
(application of existing knowledge rather than the primary creation of new knowledge or understanding)

- ☐ yes
- ☐ no

¹ Terminology:

In the following, the terms “business” and “industry” are used as synonyms for any private and public company registered under the UK Companies Act (2006) (LINK TO: <http://www.legislation.gov.uk/ukpga/2006/46/contents>). This includes limited and unlimited companies, private and public companies. It does not include governmental organisations and state-owned research organisations.

For ease of understanding, we will also use the term “university” for all types of Higher Education Institutions.

About the relationship (1/2)

The responses in this survey have to be based on a single research or consulting-related relationship with a business organisation (private or public company) you are or have been engaged in and are knowledgeable about. Research-related implies that the relationship should have primarily formed around collaborative research, contract research or staff movements between academia and industry. Please respond to all questions with this particular relationship in mind.

To help remind you of the chosen relationship throughout the survey, you can write the name of your business partner (or an acronym) in the field below. Alternatively, you can also write a general term (e.g. MY PARTNER).

Please note: No details will be asked in respect to the content of your business relationship! Neither the name of nor any other information on the company will be included in the analysis.

Name or acronym of the business partner (alternatively write: MY PARTNER)

The relationship is ...

- ☐ ongoing
- ☐ terminated
- ☐ on hold

From your organisation, who is/was involved in the relationship with the business partner chosen above?

- ☐ Primarily myself
- ☐ Most often, a (research) team of two or more people from my organisation

About the relationship (2/2)

Which research field(s) best describe(s) the topics you address together with MY PARTNER? (multiple answers possible)

If you are unsure, please click on the following link to get further information on the Common European Research Classification Scheme (CERIF),
<http://www.arrs.gov.si/en/gradivo/sifranti/inc/CERIF.pdf>

- ☐ Humanities
- ☐ Social sciences
- ☐ Natural sciences and mathematics
- ☐ Biomedical sciences
- ☐ Technological sciences

To what extent does your team collaborate with MY PARTNER with respect to the following types?

| | Not at all | | | | | | To a large extend |
|-------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Collaborative research | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Contract research | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Staff mobility | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Consulting | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

For how many years have you been involved in the relationship with MY PARTNER?

[Drop down list with the following items]

-
- < 1 year
- 1 year
- 2 years
- [...]
- 50 years

Which role(s) do you have in the relationship with MY PARTNER? (multiple answers possible)

- ☐ Researcher / consultant
- ☐ Project manager / project responsible
- ☐ Other, please specify _____

On average, how often does your team interact with MY PARTNER in research, consulting and/or mobility projects (so, not during the breaks in between projects)?

- ☐ Multiple times per week
- ☐ About once per week
- ☐ Multiple times per month
- ☐ About once per month
- ☐ Less than once per month

Common understanding of expectations

| | Totally disa- gree 1 | 2 | 3 | 4 | 5 | 6 | Totally agree 7 |
|--|-------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| In the relationship, MY PARTNER and we know what the other one strives for | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Both MY PARTNER and we understand what outcomes the other party seeks in the relationship | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The other's desires are clear to each party | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Both MY PARTNER and we are aware of what impact the other party wants the relationship to make | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Overall assessment

| | | | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Overall, it is clear to both parties what the other one expects from the relationship | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|

Common expectations

| | Totally disa- gree | | | | | | Totally agree |
|--|--------------------------|---|---|---|---|---|------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Common expectations
on OUTCOMES

| | | | | | | | |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| The expected outcomes of this relationship are shared by both MY PARTNER and us | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| MY PARTNER and we are in total agreement about the ambitions of our relationship | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| We all agree on the impact the relationship should have | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The results we expect correspond with those of MY PARTNER | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Common expectations
on OUTCOMES

| | | | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| MY PARTNER and we agree on the best ways to ensure that we reach the expected relationship outcomes | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| We all tend to agree on how to make the relationship work | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| There is consensus on the implementation and priority of strategies, procedures and activities | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Both, MY PARTNER and we have common expectations on the accomplishment of tasks in our relationship | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Overall assessment

| | | | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Overall, MY PARTNER and we have the same expectations on the relationship expects from the relationship | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|

Mutual trust and commitment

| | Totally disa- gree 1 | 2 | 3 | 4 | 5 | 6 | Totally agree 7 |
|--|-------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Trust | | | | | | | |
| Mutually, we look for what is important to the other one in the relationship | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Mutually, we are concerned about the other's welfare when making important decisions | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Mutually, we would not knowingly do anything to hurt the other one | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Mutually, we would go out of our way to help the other one | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Commitment | | | | | | | |
| Mutually, we invest time, energy and other resources as we think the relationship will generate more benefits than costs | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Mutually, we are committed to the relationship as we are sure it will generate value | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Mutually, we dedicate resources to this relationship on the assumption it will be rewarded | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Mutually, we agree that the relationship deserves effort as the benefits will outweigh the disadvantages | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Mutually, we work hard as we expect the relationship to make a positive contribution | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Overall relationship value

Please indicate how you perceive the overall value of the relationship with MY PARTNER

The questions might sound a bit abstract and similar, however, this is required to ensure reliable and valid measurement.

| | Totally disa- gree 1 | 2 | 3 | 4 | 5 | 6 | Totally agree 7 |
|---|-------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| The relationship with MY PARTNER offers value, considering all benefits and sacrifices associated with it | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Taken as a whole, this relationship is rewarding | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Overall, this relationship makes a positive contribution | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| All things considered, this relationship provides value | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Overall, this relationship is worth the effort | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Value for direct and indirect stakeholders of the relationship

This section is about your perception of the value your relationship with MY PARTNER provides to different direct and indirect stakeholders. Please note that the questions will be repeated, however, have to be answered for different stakeholder groups.

It is important for this PhD research that you answer the questions for all stakeholders as this is crucial for us to be able to determine the total value your relationship with MY PARTNER provides, and how this affects your overall perception of the relationship. You might find some questions hard to answer, however, please keep in mind that we are interested in your perception. Please respond to the best of your knowledge.

Value for you personally

When answering this question, please take into account the various benefits (e.g. new knowledge gain, more relevant work, new funding for your own projects, higher reputation, increasing changes of promotion, private income) and sacrifices (e.g. potentially lower ability/prohibition to publish, lower level of flexibility/academic freedom) you had, have and can expect to have in the future.

| | Totally disa- gree | | | | | | Totally agree |
|--|--------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Our relationship with MY PARTNER offers value to me individually, considering all my personal benefits and sacrifices associated with it | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Overall, this relationship makes a positive contribution to me | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| All in all, I get more out of the relationship with MY PARTNER than I put in | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Taken as a whole, this relationship is rewarding to me | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Value for students at your university (only students not being involved in the relationship)

When answering this question, please take into account the various benefits (e.g. more practical issues/examples in lectures, more opportunities for internships / theses / jobs, higher employability) and sacrifices (e.g. lower availability of high skilled academic staff for lectures, too high thematic/industry-specific focus in lectures) students had, have and can expect to have in the future.

| | Totally disa- gree | | | | | | Totally agree |
|--|--------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Our relationship with MY PARTNER offers value to students, considering all student benefits and sacrifices associated with it | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Overall, this relationship makes a positive contribution to students | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| All in all, students get more out of our relationship with MY PARTNER than they put in | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Taken as a whole, this relationship is rewarding to students | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Value for your university as a whole <ul style="list-style-type: none"> • including all research groups, departments and faculties not being involved in the relationship • excluding you, your (research) team involved in the relationship, and students <p>When answering this question, please <u>take into account the various benefits</u> (e.g. new funding, higher reputation, achieving the mission of the university) <u>and sacrifices</u> (e.g. less academic freedom) <u>the university had, has and can expect to have in the future.</u></p> | | | | | | | |
| | Totally disa- gree | | | | | | Totally agree |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Our relationship with MY PARTNER offers value to our university, considering all university benefits and sacrifices associated with it | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Overall, this relationship makes a positive contribution to my university | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| All in all, my university gets more out of our relationship with MY PARTNER than it puts in | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Taken as a whole, this relationship is rewarding to my university | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Value for direct and indirect stakeholders of the relationship (2/2)

Please indicate your perception on the relationship's value for 3 more stakeholders.

Value for your business partner

When answering this question, please take into account the various benefits (e.g. new knowledge, higher competitiveness, more cost-effective research activities) and sacrifices (e.g. higher coordination costs, slower research progress) MY PARTNER had, has and can expect to have in the future.

| | Totally disa- gree | | | | | | Totally agree |
|--|--------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Our relationship with MY PARTNER offers value to MY PARTNER, considering all our business partner's benefits and sacrifices associated with it | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Overall, this relationship makes a positive contribution to MY PARTNER | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| All in all, MY PARTNER gets more out of the relationship with us than it puts in | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Taken as a whole, this relationship is rewarding to MY PARTNER | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Value for your fellow team members involved in the relationship (only from your organisation)

When answering this question, please take into account the various benefits (e.g. new knowledge gain, more relevant work, new funding for your own projects, higher reputation, increasing changes of promotion) and sacrifices (e.g. potentially lower ability/prohibition to publish, lower level of flexibility/academic freedom) your team members had, have and can expect to have in the future.

| | Totally disa- gree | | | | | | Totally agree |
|---|--------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Our relationship with MY PARTNER offers value to my fellow team members involved, considering all the team's benefits and sacrifices associated with it | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| | | | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Overall, this relationship makes a positive contribution to my fellow team members involved in the relationship | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| All in all, my fellow team members involved in the relationship get more out of our relationship with MY PARTNER than they put in | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Taken as a whole, this relationship is rewarding to my fellow team members involved in the relationship | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Value for society in general <ul style="list-style-type: none"> including the general public, students of other universities, other businesses and research organisations etc. excluding all before mentioned stakeholders, namely you, your (research) team, students of your university, your university as a whole, your business partner <p>When answering this question, please <u>take into account the various benefits</u> (e.g. increasing standard of living, increasing local employment, benefits to industry, social and recreational benefits, regional, national and international higher productivity and competitiveness) <u>and sacrifices</u> (e.g. financial investments, too company-specific knowledge generation as opposed to more general knowledge generation benefiting the public) <u>society had, has and can expect to have in the future.</u></p> | | | | | | | |
| | Totally disagree | | | | | | Totally agree |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Our relationship with MY PARTNER offers value to society, considering all society benefits and sacrifices associated with it | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Overall, this relationship makes a positive contribution to society | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| All in all, society gets more out of our relationship with MY PARTNER than it puts in | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Taken as a whole, this relationship is rewarding to society | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Satisfaction

Taking everything into consideration, how do you feel about the relationship with MY PARTNER?

For me personally, the relationship with MY PARTNER is:

| | | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Unfavora- ble | | | | | | Favourable |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| | | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Dissatisfac- tory | | | | | | Satisfactory |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| | | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Displeasing | | | | | | Pleasing |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| | | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Negative | | | | | | Positive |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Intentions

In view of your intentions, please indicate the likelihood that you will try to expand your relationship with MY PARTNER.

| | | | | | | | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|---|
| No chance, almost no chance | | | | | | | | | | | Cer- tain, practi- cally cer- tain |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |

The next sections do not refer anymore to your relationship with MY PARTNER, but future relationships with businesses in general.

In my position as an academic ...

| | | | | | | | | | | |
|---|--------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|--|--|------------------|
| | Totally disa- gree | | | | | | | | | Totally agree |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | |
| ... I am willing to work more with business | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | | | |
| ... I intend to intensify my relationships with business | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | | | |
| ... I am willing to increase my interaction with indus- try | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | | | |
| ... if possible, I will ex- pand my relationships with business | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | | | |

In view of your intentions, what are the chances that you will try to expand your relationships with business in general.

| | | | | | | | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|---|
| No chance, almost no chance | | | | | | | | | | | Cer- tain, practi- cally cer- tain |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |

| Intensions with respect to academic colleagues | | | | | | | | | | |
|---|--|--|--------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | | | Totally disa- gree | | | | | | | Totally agree |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | | 7 |
| I say positive things about university-industry relationships to my colleagues at my university | | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I would recommend other academics at my university to get involved in university-industry relationships | | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I would encourage my academic colleagues to work with business | | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I would propose working with business to other academics at my universities who seek my advice | | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <p>How likely are you to recommend engagement with industry to other academics at your university?</p> <div> <div>No chance, almost no chance</div> <div>0</div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div> <div>8</div> <div>9</div> <div>10</div> <div>Certain, practically certain</div> </div> | | | | | | | | | | |
| | | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Future expectations

This section does not refer anymore to your relationship with MY PARTNER, but future relationships with businesses in general.

| | | | | | | | |
|--|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|---|
| | get as much out as I put in | | | | | | get much more out than I put in |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| In future relationships with business I would like to ... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| | worth the ef- fort | | | | | | very worth the ef- fort |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I strive for prospective university-industry rela- tionships which are ... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| | Re- warding | | | | | | very re- warding |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| At the very least, I de- mand coming relation- ships with business or- ganisations to be ... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| | equal benefits and sacri- fices | | | | | | many more benefits than sacri- fices |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| At the very least, I re- quire that my involve- ment with business or- ganisations in the future will provide ... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| | Totally disa- greed | | | | | | Totally agree |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Overall, I expect future relationships with busi- nesses to provide value. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Demographics

About your organisation

Country where your organisation is located

- ☐ England
- ☐ Scotland
- ☐ Northern Ireland
- ☐ Wales
- ☐ Other, please specify _____

Type of organisation

- ☐ University
- ☐ (University) College
- ☐ Other, please specify _____

About you

Please indicate your current position(s) in your university (multiple answers possible)

- ☐ Junior researcher / lecturer (incl. PhD student)
- ☐ Researcher / lecturer (incl. Post-doc)
- ☐ Senior researcher / lecturer
- ☐ Professor
- ☐ Manager of a research group / institute
- ☐ Head of department or faculty
- ☐ Other, please specify _____

Please specify any business-related roles you have apart from your position at your university (multiple answers possible):

- ☐ Freelancer
- ☐ Business owner
- ☐ Employee in a business
- ☐ Advisory board member or similar (for business)
- ☐ Other, please specify _____
- ☐ None

How many years have you worked at a university (where this employment was your main job)?

[Drop down list with the following items]

-
- < 1 year
- 1 year
- 2 years
- [...]
- 50 years

How many years have you worked in business (where this employment was your main job)?

[Drop down list with the following items]

-

Never worked in business

< 1 year

1 year

2 years

[...]

50 years

How many years have you been involved in university-industry relationships whilst working at a university?

[Drop down list with the following items]

-

< 1 year

1 year

2 years

[...]

50 years

If you would like to receive the results of the study, please provide your email address below (your email address will be saved separately to your answers):

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**THANK YOU VERY MUCH
FOR YOUR TIME AND YOUR CONTRIBUTION TO THIS STUDY**

Appendix 5: Non-response Bias (equal variances assumed)

| | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | |
|------------------------------|---|------|------------------------------|-----|-----------------|-----------------|-----------------------|
| | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference |
| Com. Und. Of Expectations 1 | 1.977 | .160 | -1.502 | 793 | .133 | -.16437 | .10941 |
| Com. Und. Of Expectations 2 | .021 | .885 | -1.008 | 793 | .314 | -.10891 | .10800 |
| Com. Und. Of Expectations 3 | .165 | .685 | -1.245 | 793 | .213 | -.14487 | .11636 |
| Com. Und. Of Expectations 4 | .106 | .745 | -.312 | 793 | .755 | -.03530 | .11315 |
| Commonness of Expectations 1 | 1.736 | .188 | -1.152 | 793 | .250 | -.13674 | .11872 |
| Commonness of Expectations 2 | .472 | .492 | -2.062 | 793 | .040 | -.25272 | .12257 |
| Commonness of Expectations 3 | .528 | .468 | -.613 | 793 | .540 | -.07324 | .11957 |
| Commonness of Expectations 4 | 3.112 | .078 | -2.484 | 793 | .013 | -.30459 | .12261 |
| Benevolence Trust 1 | .431 | .512 | -1.609 | 793 | .108 | -.20200 | .12551 |
| Benevolence Trust 2 | .415 | .520 | -1.589 | 793 | .112 | -.21835 | .13742 |
| Benevolence Trust 3 | 3.368 | .067 | -1.812 | 793 | .070 | -.22300 | .12304 |
| Benevolence Trust 4 | .045 | .832 | -1.740 | 793 | .082 | -.23209 | .13337 |
| Calculative Commitment 1 | .310 | .578 | -.081 | 793 | .935 | -.00948 | .11692 |
| Calculative Commitment 2 | .646 | .422 | .258 | 793 | .796 | .02918 | .11294 |
| Calculative Commitment 3 | .155 | .694 | .453 | 793 | .650 | .05162 | .11386 |
| Calculative Commitment 4 | 1.615 | .204 | .638 | 793 | .524 | .06922 | .10850 |
| Calculative Commitment 5 | .163 | .686 | .428 | 793 | .669 | .04619 | .10801 |
| Overall Relationship Value 1 | .209 | .648 | -.518 | 793 | .604 | -.05786 | .11163 |
| Overall Relationship Value 2 | .560 | .454 | .204 | 793 | .838 | .02432 | .11900 |
| Overall Relationship Value 3 | .019 | .891 | -.125 | 793 | .901 | -.01394 | .11147 |
| Overall Relationship Value 4 | .102 | .749 | -.442 | 793 | .659 | -.04847 | .10965 |
| Overall Relationship Value 5 | .029 | .865 | -.458 | 793 | .647 | -.05231 | .11417 |
| Value for Academic 1 | .036 | .849 | .049 | 793 | .961 | .00623 | .12836 |
| Value for Academic 2 | .833 | .362 | -.191 | 793 | .849 | -.02404 | .12614 |
| Value for Academic 3 | .502 | .479 | -1.737 | 793 | .083 | -.24635 | .14180 |
| Value for Academic 4 | .253 | .615 | -.467 | 793 | .641 | -.05997 | .12849 |
| Value for Students 1 | 2.374 | .124 | .323 | 793 | .747 | .05347 | .16545 |
| Value for Students 2 | 1.928 | .165 | -.203 | 793 | .839 | -.03393 | .16703 |
| Value for Students 3 | .003 | .957 | -.313 | 793 | .754 | -.05393 | .17233 |
| Value for Students 4 | .608 | .436 | -.436 | 793 | .663 | -.07354 | .16857 |
| Value for University 1 | .071 | .790 | .128 | 793 | .898 | .01480 | .11534 |
| Value for University 2 | .324 | .570 | .254 | 793 | .800 | .02948 | .11612 |
| Value for University 3 | 2.317 | .128 | -.606 | 793 | .544 | -.08675 | .14305 |
| Value for University 4 | .248 | .618 | .480 | 793 | .631 | .05844 | .12169 |
| Value for Business Partner 1 | .713 | .399 | -.098 | 793 | .922 | -.00898 | .09205 |
| Value for Business Partner 2 | .655 | .419 | .927 | 793 | .354 | .08614 | .09292 |
| Value for Business Partner 3 | .131 | .718 | .043 | 793 | .966 | .00517 | .11994 |
| Value for Business Partner 4 | .482 | .488 | .011 | 793 | .991 | .00105 | .09169 |
| Value for Academic Team 1 | .021 | .885 | -.532 | 793 | .595 | -.05813 | .10918 |
| Value for Academic Team 2 | .225 | .635 | -1.373 | 793 | .170 | -.15260 | .11113 |
| Value for Academic Team 3 | .000 | .985 | -1.230 | 793 | .219 | -.16197 | .13173 |
| Value for Academic Team 4 | .072 | .788 | -.683 | 793 | .495 | -.07813 | .11446 |
| Value for Society 1 | .235 | .628 | 1.056 | 793 | .291 | .12670 | .12000 |

| | | | | | | | |
|-----------------------------|-------|------|--------|-----|------|---------|--------|
| Value for Society 2 | .989 | .320 | 1.137 | 793 | .256 | .13804 | .12137 |
| Value for Society 3 | .004 | .950 | .085 | 793 | .932 | .01185 | .13981 |
| Value for Society 4 | .057 | .812 | 1.717 | 793 | .086 | .21191 | .12343 |
| Relationship Satisfaction 1 | .426 | .514 | -1.050 | 793 | .294 | -.12549 | .11953 |
| Relationship Satisfaction 2 | .573 | .449 | -1.218 | 793 | .224 | -.16427 | .13485 |
| Relationship Satisfaction 3 | .531 | .466 | -1.249 | 793 | .212 | -.16105 | .12892 |
| Relationship Satisfaction 4 | .796 | .373 | -1.475 | 793 | .141 | -.18240 | .12363 |
| Intention to Renew | 1.116 | .291 | .311 | 793 | .756 | .08023 | .25758 |
| Intention to Expand | 1.505 | .220 | -1.410 | 793 | .159 | -.28452 | .20174 |
| WOM 1 | .595 | .441 | -1.215 | 793 | .225 | -.13882 | .11423 |
| WOM 2 | .539 | .463 | -1.383 | 793 | .167 | -.16078 | .11630 |
| WOM 3 | .811 | .368 | -1.130 | 793 | .259 | -.13101 | .11593 |
| WOM 4 | .851 | .357 | -1.526 | 793 | .128 | -.18502 | .12128 |

Appendix 6: Assessment of Normality

| Variable | min | max | skew | c.r. | kurtosis | c.r. |
|---------------------|-----|-----|--------|---------|----------|---------|
| Com 2 | 1 | 7 | -0.939 | -11.523 | 0.55 | 3.375 |
| Com 3 | 1 | 7 | -0.923 | -11.32 | 0.645 | 3.958 |
| Com 4 | 1 | 7 | -1.034 | -12.682 | 0.837 | 5.137 |
| Com 5 | 1 | 7 | -1.128 | -13.839 | 1.197 | 7.345 |
| ComUndExp 1 | 1 | 7 | -0.944 | -11.583 | 0.907 | 5.561 |
| ComUndExp 2 | 1 | 7 | -0.993 | -12.187 | 0.802 | 4.92 |
| ComUndExp 3 | 1 | 7 | -0.805 | -9.875 | 0.269 | 1.649 |
| ComExp 2 | 1 | 7 | -0.665 | -8.159 | -0.119 | -0.727 |
| ComExp 3 | 1 | 7 | -0.752 | -9.224 | 0.099 | 0.607 |
| ComExp 4 | 1 | 7 | -0.692 | -8.493 | 0.002 | 0.01 |
| Intention to expand | 1 | 11 | -1.054 | -12.933 | 0.806 | 4.942 |
| Intention to renew | 1 | 11 | -0.895 | -10.979 | -0.222 | -1.36 |
| Sat 2 | 1 | 7 | -1.159 | -14.224 | 0.693 | 4.248 |
| Sat 3 | 1 | 7 | -1.071 | -13.138 | 0.707 | 4.337 |
| Sat 4 | 1 | 7 | -1.285 | -15.764 | 1.3 | 7.971 |
| ValBus 1 | 1 | 7 | -0.947 | -11.617 | 1.534 | 9.407 |
| ValBus 2 | 1 | 7 | -1.002 | -12.291 | 1.404 | 8.61 |
| ValBus 4 | 1 | 7 | -1.06 | -13.007 | 1.731 | 10.616 |
| ValAcad 1 | 1 | 7 | -0.906 | -11.117 | 0.245 | 1.505 |
| ValAcad 2 | 1 | 7 | -0.915 | -11.224 | 0.263 | 1.612 |
| ValAcad 4 | 1 | 7 | -0.831 | -10.2 | 0.071 | 0.433 |
| ValRel 3 | 1 | 7 | -1.356 | -16.63 | 1.896 | 11.629 |
| ValRel 4 | 1 | 7 | -1.331 | -16.326 | 1.989 | 12.2 |
| ValRel 5 | 1 | 7 | -1.468 | -18.009 | 2.172 | 13.32 |
| ValSoc 1 | 1 | 7 | -0.879 | -10.786 | 0.619 | 3.797 |
| ValSoc 2 | 1 | 7 | -0.919 | -11.276 | 0.623 | 3.819 |
| ValSoc 4 | 1 | 7 | -0.876 | -10.75 | 0.411 | 2.518 |
| ValStu 1 | 1 | 7 | -0.282 | -3.459 | -1.044 | -6.406 |
| ValStu 2 | 1 | 7 | -0.28 | -3.436 | -1.082 | -6.634 |
| ValStu 4 | 1 | 7 | -0.24 | -2.948 | -1.111 | -6.817 |
| ValTeam 1 | 1 | 7 | -0.851 | -10.435 | 0.58 | 3.556 |
| ValTeam 2 | 1 | 7 | -0.899 | -11.033 | 0.629 | 3.859 |
| ValTeam 4 | 1 | 7 | -0.908 | -11.142 | 0.599 | 3.677 |
| ValUni 1 | 1 | 7 | -1.117 | -13.709 | 1.264 | 7.755 |
| ValUni 2 | 1 | 7 | -1.126 | -13.808 | 1.231 | 7.552 |
| ValUni 4 | 1 | 7 | -1.129 | -13.848 | 1.193 | 7.32 |
| WOM 2 | 1 | 7 | -1.189 | -14.589 | 1.444 | 8.857 |
| WOM 3 | 1 | 7 | -1.19 | -14.6 | 1.454 | 8.92 |
| WOM 4 | 1 | 7 | -1.143 | -14.023 | 1.199 | 7.352 |
| Multivariate | | | | | 830.965 | 220.779 |

Appendix 7: Correlations between Constructs

| | ComUndExp | ComExp | Com | Tru | ValAcad | ValTeam | ValUni | ValStu | ValBus | ValSoc | RelVal | Sat | WOM | IntRenew | IntExpand |
|-----------|-----------|--------|------|------|---------|---------|--------|--------|--------|--------|--------|------|------|----------|-----------|
| ComUndExp | 1 | .799 | .617 | .639 | .473 | .555 | .399 | .302 | .472 | .327 | .661 | .615 | .352 | .400 | .193 |
| ComExp | | 1 | .693 | .731 | .525 | .544 | .423 | .349 | .464 | .384 | .682 | .668 | .403 | .427 | .195 |
| Com | | | 1 | .753 | .575 | .581 | .538 | .390 | .512 | .424 | .744 | .681 | .378 | .487 | .209 |
| Tru | | | | 1 | .563 | .583 | .481 | .396 | .426 | .415 | .689 | .664 | .390 | .482 | .226 |
| ValAcad | | | | | 1 | .632 | .548 | .397 | .392 | .454 | .756 | .733 | .345 | .458 | .211 |
| ValTeam | | | | | | 1 | .631 | .369 | .528 | .475 | .708 | .623 | .411 | .457 | .231 |
| ValUni | | | | | | | 1 | .461 | .448 | .451 | .615 | .549 | .367 | .465 | .247 |
| ValStu | | | | | | | | 1 | .290 | .359 | .425 | .392 | .320 | .344 | .222 |
| ValBus | | | | | | | | | 1 | .511 | .518 | .418 | .315 | .302 | .184 |
| ValSoc | | | | | | | | | | 1 | .527 | .458 | .324 | .363 | .197 |
| RelVal | | | | | | | | | | | 1 | .790 | .444 | .589 | .294 |
| Sat | | | | | | | | | | | | 1 | .419 | .580 | .262 |
| WOM | | | | | | | | | | | | | 1 | .461 | .574 |
| IntRenew | | | | | | | | | | | | | | 1 | .462 |
| IntExpand | | | | | | | | | | | | | | | 1 |

Appendix 8: Path Coefficients of the Conceptual and Final Model

| Hyp. | Ind. variable | Dep. variable | Conceptual Model | | | | Final Model | | | |
|------|------------------|------------------|-------------------------|----------|-------|-------------------|-------------------------|----------|-------|-------------------|
| | | | Standardized Effects | | | Critical Ratio | Standardized Effects | | | Critical Ratio |
| | | | Direct | Indirect | Total | | Direct | Indirect | Total | |
| H1 | ComUndExp | ComExp | .782 | - | .782 | 27.260*** | 791 | - | 791 | 27.600*** |
| H2a | ComUndExp | Com | .195 | .426 | .621 | 3.982*** | 187 | 427 | 614 | 3.660*** |
| H2b | ComExp | Com | .544 | - | .544 | 10.478*** | 540 | - | 540 | 9.983*** |
| H3a | Com | ValAcad | .405 | .178 | .582 | 12.241*** | 403 | 175 | 579 | 12.209*** |
| H3b | Com | ValTeam | .362 | .240 | .602 | 11.917*** | 156 | 436 | 592 | 4.784*** |
| H3c | Com | ValUni | .536 | - | .536 | 17.569*** | 533 | - | 533 | 17.422*** |
| H3d | Com | ValBus | .393 | .127 | .520 | 11.037*** | 389 | 125 | 514 | 10.936*** |
| H4 | Com | RelVal | .371 | .399 | .771 | 13.751*** | 258 | 369 | 627 | 8.419*** |
| H5a | ValUni | ValAcad | .331 | - | .331 | 10.096*** | 329 | - | 329 | 10.032*** |
| H5b | ValUni | ValTeam | .447 | - | .447 | 14.629*** | 304 | 145 | 449 | 10.018*** |
| H5c | ValUni | ValBus | .236 | - | .236 | 6.660*** | 235 | - | 235 | 6.627*** |
| H5d | ValUni | ValStu | .465 | - | .465 | 15.233*** | 349 | - | 349 | 9.666*** |
| H6a | ValAcad | ValSoc | .166 | - | .166 | 4.387*** | 168 | 030 | 197 | 4.415*** |
| H6b | ValTeam | ValSoc | .106 | - | .106 | 2.499* | 096 | - | 096 | 2.241* |
| H6c | ValUni | ValSoc | .099 | .234 | .333 | 2.441* | 101 | 215 | 315 | 2.545* |
| H6d | ValBus | ValSoc | .318 | - | .318 | 9.384*** | 317 | 018 | 334 | 9.369*** |
| H6e | ValStu | ValSoc | .121 | - | .121 | 3.792*** | 120 | - | 120 | 3.803*** |
| H7a | ValAcad | RelVal | .347 | .014 | .361 | 13.231*** | 323 | 069 | 392 | 12.279*** |
| H7b | ValTeam | RelVal | .187 | .009 | .197 | 6.636*** | 167 | 009 | 175 | 5.917*** |
| H7c | ValSoc | RelVal. | .087 | - | .087 | 3.877*** | 091 | - | 091 | 4.292*** |
| H7f | ValUni | RelVal | .066 | .241 | .307 | 2.493* | 086 | 210 | 296 | 3.412*** |
| H8a | RelVal | Sat | .793 | - | .793 | 31.839*** | 425 | - | 425 | 10.884*** |
| H8b | RelVal | WOM | .180 | .260 | .440 | 3.823*** | 176 | 182 | 358 | 3.805*** |
| H8d | RelVal | IntRenew | .350 | .231 | .581 | 7.517*** | 345 | 125 | 471 | 7.562*** |
| H9a | Sat | IntRenew | .292 | - | .292 | 6.189*** | 295 | - | 295 | 6.486*** |
| H9c | Sat | WOM | .104 | .055 | .159 | 2.206* | 110 | 085 | 195 | 2.403* |
| H10a | IntRenew | WOM | .080 | .205 | .285 | 2.248* | 079 | 209 | 289 | 2.238* |
| H10b | IntRenew | IntExpand | .449 | - | .449 | 11.998*** | 457 | - | 457 | 15.648*** |
| H11 | IntExpand | WOM | .456 | - | .456 | 15.320*** | 457 | - | 457 | 15.339*** |
| Add1 | ComUndExp | Sat | | | | | 191 | 345 | 536 | 6.855*** |
| Add2 | ComExp | RelVal | | | | | 187 | 339 | 526 | 6.684*** |
| Add3 | Com | ValStu | | | | | 205 | 186 | 391 | 5.743*** |
| Add4 | ValAcad | ValTeam | | | | | 308 | - | 308 | 9.955*** |
| Add5 | ValBus | ValTeam | | | | | 186 | - | 186 | 6.550*** |
| Add6 | ValAcad | Sat | | | | | 333 | 167 | 500 | 9.893*** |

Legend: *** p<0.001; ** p<0.01; * p<0.05

Appendix 9: Path Coefficients for the Four Models on Relationship Outcome Drivers

Relationship Satisfaction

| Hyp. | Independent variable | Dependent variable | Standardized Effects | | | Critical Ratio | Hyp. Sup. |
|------|----------------------|----------------------|----------------------|----------|-------|----------------|-----------|
| | | | Direct | Indirect | Total | | |
| H1a | Value for University | Value for Academic | .553 | - | .553 | 18.227*** | YES |
| H1b | Value for University | Value for Acad. Team | .342 | .309 | .651 | 11.238*** | YES |
| H1c | Value for University | Value for Business | .454 | - | .454 | 14.335*** | YES |
| H1d | Value for University | Value for Students | .467 | - | .467 | 15.202*** | YES |
| H1e | Value for University | Value for Society | .101 | .361 | .461 | 2.494* | YES |
| H2 | Value for Academic | Value for Acad. Team | .367 | - | .367 | 12.501*** | YES |
| H3 | Value for Business | Value for Acad. Team | .233 | - | .233 | 8.534*** | YES |
| H4a | Value for Academic | Value for Society | .171 | .036 | .207 | 4.445*** | YES |
| H4b | Value for Acad. Team | Value for Society | .097 | - | .097 | 2.260* | YES |
| H4c | Value for Business | Value for Society | .321 | .023 | .343 | 9.371*** | YES |
| H4d | Value for Students | Value for Society | .122 | - | .122 | 3.835*** | YES |
| H5a | Value for Academic | Rel. Satisfaction | .509 | .080 | .589 | 15.227*** | YES |
| H5b | Value for Acad. Team | Rel. Satisfaction | .182 | .006 | .188 | 5.059*** | YES |
| H5c | Value for Society | Rel. Satisfaction | .066 | - | .066 | 2.278* | YES |
| H5d | Value for Business | Rel. Satisfaction | .043 | .065 | .108 | 1.431 | NO |
| H5e | Value for Students | Rel. Satisfaction | .053 | .008 | .061 | 2.002* | YES |
| H5f | Value for University | Rel. Satisfaction | .086 | .474 | .560 | 2.561* | YES |

Legend: *** p<0.001; ** p<0.01; * p<0.05

WOM

| Hyp. | Independent variable | Dependent variable | Standardized Effects | | | Critical Ratio | Hyp. Sup. |
|------|----------------------|----------------------|----------------------|----------|-------|----------------|-----------|
| | | | Direct | Indirect | Total | | |
| H1a | Value for University | Value for Academic | .551 | - | .551 | 18.157*** | YES |
| H1b | Value for University | Value for Acad. Team | .650 | - | .650 | 11.263*** | YES |
| H1c | Value for University | Value for Business | .454 | - | .454 | 14.331*** | YES |
| H1d | Value for University | Value for Students | .466 | - | .466 | 15.197*** | YES |
| H1e | Value for University | Value for Society | .101 | .360 | .461 | 2.500* | YES |
| H2 | Value for Academic | Value for Acad. Team | .365 | - | .365 | 12.457*** | YES |
| H3 | Value for Business | Value for Acad. Team | .233 | - | .233 | 8.538*** | YES |
| H4a | Value for Academic | Value for Society | .171 | .036 | .206 | 4.450*** | YES |
| H4b | Value for Acad. Team | Value for Society | .098 | - | .098 | 2.268* | YES |
| H4c | Value for Business | Value for Society | .320 | .023 | .343 | 9.370*** | YES |
| H4d | Value for Students | Value for Society | .123 | - | .123 | 3.838*** | YES |
| H5a | Value for Academic | Rel. Satisfaction | .066 | .086 | .151 | 1.540 | NO |
| H5b | Value for Acad. Team | Rel. Satisfaction | .188 | .008 | .196 | 3.937*** | YES |
| H5c | Value for Society | Rel. Satisfaction | .082 | - | .082 | 2.127* | YES |
| H5d | Value for Business | Rel. Satisfaction | .076 | .072 | .148 | 1.911 | NO |
| H5e | Value for Students | Rel. Satisfaction | .147 | .010 | .157 | 4.138*** | YES |
| H5f | Value for University | Rel. Satisfaction | .075 | .299 | .374 | 1.676 | NO |

Legend: *** p<0.001; ** p<0.01; * p<0.05

Intentions to Renew

| Hyp. | Independent variable | Dependent variable | Standardized Effects | | | Critical Ratio | Hyp. Sup. |
|------|----------------------|----------------------|----------------------|----------|-------|----------------|-----------|
| | | | Direct | Indirect | Total | | |
| H1a | Value for University | Value for Academic | .552 | - | .552 | 18.165*** | YES |
| H1b | Value for University | Value for Acad. Team | .343 | .308 | .651 | 11.264*** | YES |
| H1c | Value for University | Value for Business | .454 | - | .454 | 14.332*** | YES |
| H1d | Value for University | Value for Students | .466 | - | .466 | 15.198*** | YES |
| H1e | Value for University | Value for Society | .101 | .360 | .461 | 2.498* | YES |
| H2 | Value for Academic | Value for Acad. Team | .366 | - | .366 | 12.463*** | YES |
| H3 | Value for Business | Value for Acad. Team | .233 | - | .233 | 8.536*** | YES |
| H4a | Value for Academic | Value for Society | .171 | .036 | .207 | 4.450*** | YES |
| H4b | Value for Acad. Team | Value for Society | .098 | - | .098 | 2.268* | YES |
| H4c | Value for Business | Value for Society | .320 | .023 | .343 | 9.371*** | YES |
| H4d | Value for Students | Value for Society | .123 | - | .123 | 3.838*** | YES |
| H5a | Value for Academic | Rel. Satisfaction | .175 | .078 | .253 | 4.416*** | YES |
| H5b | Value for Acad. Team | Rel. Satisfaction | .160 | .009 | .169 | 3.633*** | YES |
| H5c | Value for Society | Rel. Satisfaction | .093 | - | .093 | 2.625** | YES |
| H5d | Value for Business | Rel. Satisfaction | -.009 | .069 | .060 | -.245 | NO |
| H5e | Value for Students | Rel. Satisfaction | .101 | .011 | .112 | 3.069** | YES |
| H5f | Value for University | Rel. Satisfaction | .183 | .287 | .470 | 4.423*** | YES |

Legend: *** p<0.001; ** p<0.01; * p<0.05

Intentions to Expand

| Hyp. | Independent variable | Dependent variable | Standardized Effects | | | Critical Ratio | Hyp. Sup. |
|------|----------------------|----------------------|----------------------|----------|-------|----------------|-----------|
| | | | Direct | Indirect | Total | | |
| H1a | Value for University | Value for Academic | .552 | - | .552 | 18.157*** | YES |
| H1b | Value for University | Value for Acad. Team | .343 | .307 | .651 | 11.265*** | YES |
| H1c | Value for University | Value for Business | .454 | - | .454 | 14.332*** | YES |
| H1d | Value for University | Value for Students | .466 | - | .466 | 15.198*** | YES |
| H1e | Value for University | Value for Society | .101 | .360 | .461 | 2.500* | YES |
| H2 | Value for Academic | Value for Acad. Team | .365 | - | .365 | 12.455*** | YES |
| H3 | Value for Business | Value for Acad. Team | .233 | - | .233 | 8.534*** | YES |
| H4a | Value for Academic | Value for Society | .171 | .036 | .206 | 4.451*** | YES |
| H4b | Value for Acad. Team | Value for Society | .098 | - | .098 | 2.268* | YES |
| H4c | Value for Business | Value for Society | .320 | .023 | .343 | 9.372*** | YES |
| H4d | Value for Students | Value for Society | .123 | - | .123 | 3.838*** | YES |
| H5a | Value for Academic | Rel. Satisfaction | .036 | .034 | .070 | .798 | NO |
| H5b | Value for Acad. Team | Rel. Satisfaction | .066 | .005 | .071 | 1.318 | NO |
| H5c | Value for Society | Rel. Satisfaction | .047 | - | .047 | 1.150 | NO |
| H5d | Value for Business | Rel. Satisfaction | .035 | .031 | .067 | .844 | NO |
| H5e | Value for Students | Rel. Satisfaction | .111 | .006 | .117 | 2.973** | YES |
| H5f | Value for University | Rel. Satisfaction | .096 | .152 | .249 | 2.041* | YES |

Legend: *** p<0.001; ** p<0.01; * p<0.05

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